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The Great Exhibition

OF 1851;

OR,

THE WEALTH OF THE WORLD IN ITS WORKSHOPS.

COMPARING THE RELATIVE SKILL OF THE MANUFACTURERS,
DESIGNERS, AND ARTISANS OF ENGLAND WITH THAT OF FRANCE,
BELGIUM, PRUSSIA, AND OTHER CONTINENTAL STATES.

BY PHILOPONOS.



LONDON:

EDWARD CHURTON, 26, HOLLES STREET.

1850.

Price 2s. 6d.

SCHULZE AND CO., 13, POLAND STREET.

THE GREAT COMMISSION

OF 1851

THE WEATHER OF THE WORLD

IN ITS WORKS

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BY ALFRED RUSSELL

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X

THE GREAT EXHIBITION  
OF 1851  
THE WEALTH OF THE WORLD  
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"Faciliter les communications entre les peuples et les rendre toujours moins  
étranger les uns aux autres."—*Traité de Paris, Art. 5.*

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HCS  
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TO

HIS ROYAL HIGHNESS PRINCE ALBERT, K.G.,

&c., &c., &c.

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PRINCE,

IF I should be thought presumptuous in dedicating the observations contained in the following pages to your Royal Highness, without your expressed permission, the only apology I can plead is, my admiration of the originality and beneficence of the noble conception to which we shall owe the forthcoming *Exposition of the Industry of all Nations*.

The influence which the great and philanthropic project of your Royal Highness will exercise upon the destinies of mankind, cannot yet be appreciated. It is nothing less, in its essence, than an appeal—an invitation to the whole family of man to cultivate the arts of peace in unison; to disabuse themselves of national prejudices by a friendly intercourse with each other; and to learn with candour, and yet in a spirit of emulation, how they may each, by availing themselves of the experience and progress of the rest in the several branches of human industry, contribute more effectually to the comfort, the prosperity, and the

refinement of all; and the manner in which this appeal has been readily and simultaneously responded to by every civilized nation in the Old World and the New, is an earnest, not to be questioned, that its high purposes will be accomplished.

Nevertheless, it has been my lot to observe that—although justice is universally done to the motives of your Royal Highness in suggesting this great gathering together of the most perfect specimens of the industrial capacities of all nations—a presentiment prevails amongst many of our mechanicians, artisans, and operatives, that the results of the EXPOSITION may ultimately prove injurious to themselves; and to remove those groundless impressions is the sole object of the little work, which I venture to dedicate to your Royal Highness, trusting that, however great may appear my presumption, your Royal Highness will believe that I am actuated only by a good motive, and that I am,

Your Royal Highness's

Most obedient and respectful servant,

PHILOPONOS.

BAYSWATER,

OCTOBER, 1850.



EXPOSITION  
OF THE  
INDUSTRY OF ALL NATIONS.

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PRELIMINARY REMARKS.

“No living being is entitled to claim perfection for the arts useful to man. They are progressive in their very nature; and often when they are thought to be carried to the very highest point of excellence, an unexpected discovery opens to them a new career.”—*M. Chas. Dupin's Suggestions to the Producers and Manufacturers of France.*

ALTHOUGH public opinion has from the first greatly preponderated in favour of the Grand Exposition for 1851, there are, nevertheless, some classes—and those not slightly concerned in the ultimate results of the experiment—who regard it with dislike and alarm. Nor can this excite any astonishment. It is natural that men, whose skill and industry are their all, should on such an occasion be influenced by anxiety for their own material interests, rather than by those loftier speculations on the future destinies of the civilized world, which engage the attention of the statesman, the political economist, and the philanthropist.

The silversmiths of Ephesus have not been the only artisans who have exhibited such solicitude and apprehension about "the craft by which they had their wealth." It has been so in all ages and in every country—and in no country more remarkably than in our own. The most gloomy forebodings—and sometimes the most factious heart-burnings—have been engendered amongst our working classes, when any new process has been introduced for rendering the products of their labour more abundant and perfect, no matter whether it was an improvement imported from abroad, or the invention of native genius. Though the enlightened and disinterested saw clearly that the only effect which such improvements could have upon the condition of the working classes must be a beneficial one, by causing a larger consumption of their products, and thus causing a larger demand for their labour, they were themselves haunted by the fear that it might prove otherwise; and fear is a counsellor most ingenious and persuasive in suggesting imaginary dangers. We are, therefore, not surprised that many classes of our operatives—and many even among our artisans of a superior order—should contemplate the projected Exposition with dislike, prompted by a feeling of uneasiness as to its future bearing upon their own interests; and it is the object of these pages to convince them that their jealousy and alarm on this score are groundless.

One suggestion of their fears is, that the Exposition, by bringing under the notice of the collected rank and wealth of their own country the choicest specimens of manufacture which the skill of all foreign nations combined can produce, will (to use a vulgar phrase) reduce our native manufactures to a still lower discount in our own markets. Now, we will allow that Fashion has hitherto evinced a very unpatriotic and a very silly preference for manufactures which bear a foreign stamp. But how has this come to



pass? *Omne ignotum pro magnifico!* Fashion—that is the world of Fashion—has not as yet enjoyed sufficient opportunities to learn to distinguish the real merits of a fabric, or even to distinguish whether a fabric is of foreign or home preparation. Let the most fastidious lady enter one of our silk-mercers' shops. If a silk is submitted to her notice as of Spitalfields or Manchester manufacture, no matter how rich the design and how delicate the texture, she will throw it aside; whereas, if the self-same piece had been presented to her as coming from the looms of Lyons, she would have been in ecstasy at becoming mistress of it, at almost any price! This is the *prejudice* of Fashion arising from ignorance; and what could be so well calculated to dispel such ignorance and eradicate such prejudice, as Expositions like that proposed, where the rival fabrics may be inspected and studied, side by side, and without any delusion as to their origin; and where, not an interested shopkeeper or a credulous lady, but the most competent and impartial tribunal in the world, will decide upon their respective merits, and award to the artisans who have produced them their proper meed of praise for the excellences they have displayed, without reference to their country or to the popular favour in which their productions have heretofore been held? Have not our operatives and artisans always (and we think justly) complained that they have not as yet met with fair play from the rank and wealth of their own country; that they have been snubbed and proscribed by Fashion from an impression, which no proofs of superior excellence could have removed, that they are naturally inferior to foreigners in every branch of handiwork to which the latter have applied themselves? The Exposition will be the means of testing the justice of this reproach; and, as our countrymen know it to be undeserved, why should they look forward to the application of the test with uneasiness for their future reputation? The decision of the judges must at least be

*fair*, and therefore infinitely more favourable to them than the sentence of their own country has been.

In speaking thus, we would not be supposed to be flattering our countrymen with the expectation that they will not meet with much formidable, and even successful, competition at the Exposition. We do expect that in those branches of operative skill and art, which are peculiarly British, they will prove unrivalled; and that, even in some in which the superiority of our continental neighbours is rather a lingering tradition from the past than a reality of the present, they will be able to assert an equality of excellence which, from the causes above-stated, has hitherto been injuriously denied them. There are others, however, in which we can scarcely hope to find them pre-eminent—in those principally in which the perfection of the art of design is an indispensable element. There are many reasons for the present superiority of, at least, our French neighbours in this respect, and it will not be uninteresting or uninformative to discuss the chief of them briefly in this place.

There is in France, as compared with England, so little employment for juvenile labour, that the rising generation has ample leisure for some preliminary instruction before it is summoned to the active duties of life. In and around all our great seats of manufacturing industry, a child can be put to some use, so as to contribute something towards the support of the family at a very early age; and hence we find that, when grown up, they have acquired no accomplishments in the way of education, farther than such as enable them to read a newspaper and (with some difficulty) to write a letter. For the peculiar occupation to which they are destined they receive no preparatory education at all; they take to it, when very young, nothing more than their natural strength and mother wit; and they grow up as nothing more than the motive power of the tools they are taught to use, or the tools of the motive power which it is their business to attend



to. They thus become most expert workmen—and perhaps they owe a portion of their excellence in this respect to all their mental energies being concentrated in what may be called the manipulation of the task they are performing. To that task they daily apply themselves without troubling their heads about how their labour might be abridged, or how the product of it might be improved. But in France, a contrary system is prevalent, arising from the different circumstances of the two countries. Children, as we have said, have there a few years for education before they are called to contribute to their own support; and the State has wisely provided that this education shall be such as will be of some service to themselves and to society in after-life. The art of design is a principal feature in it—though not to the exclusion of the ordinary rudiments of reading and writing—and thus it may be truly said, that the child is made the father of the man, for he acquires in childhood that which will be most serviceable to him in manhood, and which can rarely be acquired after the cares of manhood have begun, and the habits of self-satisfied ignorance have become confirmed. It is this early and appropriate education which renders almost every operative in France an *artist* likewise in the branch of manufacture to which he has been devoted. Hence he has a superior *taste for the beautiful* to what the English operative can boast; and the fruits of this elevation in the capacity and imagination of the French operatives are naturally observable in the greater delicacy or grandeur of French designs, as the occasion may require. We do not mean that the French operatives universally supply the designs for the productions upon which they are engaged; but when they do not, it is a necessary consequence of there being such *respectable* masters of the art of design, that those who make the art of design a profession, must be *very superior* masters of it indeed, and that the operatives themselves, from their capacity to appreciate the ideas of the designer, must be

capable of interpreting and expressing them in the execution of the work more effectually than if they had no more sense of their beauty than the scene-painter, however expert in the use of his brush, may be supposed to have of the beauty of a Claude or Canaletti.

But if the Exposition should afford evidences of this defect in the education of our skilled labourers, by an unfavourable contrast between their *chefs-d'œuvre* and those of their foreign competitors, the former, so far from deprecating, should welcome it as fraught with great future advantage to them. If either party could show any *reasonable* objection against contributing to the Exposition, it is the foreign artist-operative who could adduce the best argument against it; for could he not with the most reason exclaim against his best specimens of design being sent over to England to inspire and instruct his rivals there to aim at and achieve an equal degree of perfection?

Our artisans, on reflection, will not be disposed to deny that this Exposition will confer upon them an advantage never before possessed by any profession connected with the Fine Arts. The rising painter, after years of practice and study at home, is compelled to serve another apprenticeship to his art, in studying the multitude of great works by the master-spirits of old, which are scattered over nearly the whole continent of Europe, before he can be said to have finished his education. It is the same with the young sculptor, who must spend at least three years in the Eternal City and other parts of Italy, before he can flatter himself that the resources and capabilities of his art are sufficiently known to him to justify him in becoming an aspirant for patronage and fame. But all the artisan wants, in order to improve his own judgment and skill by studying the more perfect works of others, will, by this Exposition, be brought as it were to his door.

But the Exposition, while it cannot fail to prove highly



instructive to our skilled artisans, by the *studies* which it will bring before them for the enlargement of their conceptions and the improvement of their taste, will also undoubtedly conduce, in another manner, to the elevation of their calling in an intellectual, and of their condition in a worldly, sense. It has generally been assumed, as we have before remarked, that the inferiority of the British artisan in design is a natural defect, and that taste is a gift which has been but very moderately vouchsafed to him. But this theory will not bear a philosophic examination. Always and everywhere the development of any faculty, and its progress towards perfection, have depended upon the demand for its employment, and the rewards offered for its exercise. If the great body of the people do not appreciate, or have no relish for, any particular kind of excellence, the talents which could otherwise display it will remain dormant. Thus, while the people of this country had no taste for music of a refined and elevated character, we had no native composers in the higher walks of the art; but since the public taste has been educated in this respect, and the great body of the people can enjoy and require what their forefathers had no ear for, we have had a galaxy of composers, scarcely inferior to the brightest stars of Italy. And so it has been, and will be, with our skilled artisans. If they have not hitherto shone in the higher walks of ornamental art, it has been because the mass of the community has not appreciated it, and that there has therefore been no sufficient demand for its production to reward its cultivation. But let the public taste become educated in this respect—and what means so powerful to this end as such Expositions as that intended?—let there thus arise a demand for greater excellence in decorative works than those which satisfy the ignorant simplicity of the present day, and latent talent will be evoked to supply it. Elegance in dress, in furniture, in household fixtures, in every requisite for personal and do-

mestic enjoyment, will conventionally become one of the prime decencies of life ; and who can doubt that such a consummation would greatly elevate the worldly condition of the skilled artisan ; while, as callings are always estimated according to the intellect required in their exercise, it would equally elevate him in the scale of society.

We must also solicit attention to another consideration. The skilled artisan in this country will always possess one great advantage over the artisan of any other, namely, the vast abundance of capital which in this country is always ready to avail itself of his talents. It will be said that the artisan has not found this to be invariably the case ; but this seeming contradiction to the assertion is easily explained. Hitherto our artisans have had little more than mere manual skill to offer, and the capitalist has regarded them, according to the different branches of employment for which they are fitted, as being all nearly equal to each other in this respect, that it has not been worth his while to make any discrimination between them. If he required a hundred hands, he went into the appropriate labour-market, and took those out of the number competing for work, who were willing to work, on the lowest terms. This practice is very injurious to the artisans as a body, for not only have the best been excluded from employment by the competition of the worst, but the rate of remuneration became fixed by what the very worst hands were willing to accept. This has arisen from the difficulty of discovering beforehand any difference in the value of the mere manual labour of individuals. The artisan has had nothing to offer to the competition of capitalists, for the competition has been the other way, manual labour competing for employment. But how different would be the case, if the artisan was an artist also—one not only with hands to execute, but with a head to design ? This would at once do away with the equality (assumed if not real) in the value of the services



of all, which has reduced all to the necessity of contending amongst themselves for employment, the strange principle of their rivalry for the notice of the capitalist being, not who can do the best work, but who will sacrifice himself for the worst wages. Let the artisan, we repeat, become an artist also, and this would be done away with ; for though there may be no difference between the value of one pair of hands and that of another pair of hands, there will always be a difference between the value of one man's intellectual gifts and those of another man's. If then the artisan had not only a pair of hands but a head also to be employed, his situation would be most happily reversed. Instead of waiting in the labour-market for the chance of being the lowest bidder for employment, he would go to the capital-market to find the highest bidder for his services. Capitalists would then be the competitors for high-priced talent, and not artisans the competitors for low-priced work.

Lastly, let none be so near-sighted and narrow-minded as to urge that the Exposition will be a stimulus to foreign nations to excel in the industrial arts. We trust that it may be so, and that it may conduce to their rapid progress in prosperity. We wish to see them rich and flourishing ; for what reason have we, even on the score of selfishness, to desire that they should remain in poverty or fall into decay ? We are—with our great natural advantages, our unbounded supply of coals and of all the useful metals, the energetic and never-tiring industry of our population, the enterprising spirit of our Anglo-Saxon blood, our peculiar climate which renders bodily and mental activity a condition of healthy existence, and our insular position, so pre-eminently favourable to commerce—we are, by these and other great natural advantages, and for an indefinite term must continue to be, the great manufacturing and mercantile nation of the world. What, therefore, have we to fear ? Not that other

nations may grow rich, but that they may grow poor ; *for poor countries must ever be poor customers to us.* Let our artisans ever remember this.

In the following pages, we shall endeavour to illustrate the importance of art as applied to manufacturing industry, and to show the extent to which it has already been applied, by comparing the skilled productions of England with those of the continent, in order that the aim of the *Exposition* may be clearly understood by every intelligent class of the community.



## CHAPTER I.

## THE ADVANTAGE OF ART AS APPLIED TO MANUFACTURES.

IF the mathematical and physical sciences are monuments of the industry with which man has, from the earliest times, been interrogating Nature for a revelation of the *secret forces* she employs in the economy of the universe, his mechanical inventions are also monuments of the sagacity with which he has availed himself of such discoveries, in order to overcome the resistance which she offered to his progress when he first appeared on the surface of the earth. If he was ordained to replenish the earth and "subdue it," a long probationary task was prepared for him before he could make good his title as "lord of the creation." Rivers were impassable, forests impenetrable, and even the beasts of the field formidable to him, until he could invent for himself some sort of mechanical tools and weapons of defence. Placed, as it were, amongst a heap of rugged and stubborn materials, for which he could divine no object except as obstacles purposely designed for his embarrassment or injury, and visited by phenomena in which he could read nothing but signs of sudden extermination; still, with the exception of a few dark ages of relapse, his progress in compelling Nature to explain the secrets of her mighty laboratory, and enable him to fashion her once-apparently useless stores to his ever-increasing necessities, comforts, luxuries, and even amusements, has been steady, and, in these latter days, gigantic. He

braves the wind, and breasts the gulf-stream, with his ships; flings the hill into the valley, or the impending cliff into the sea, by a touch; and, greatest of all achievements of mind over the most uncontrollable elements of nature, forces the electric fluid, not only to move as he directs, but to *speak* as he bids.

And, from the first, the progress of man in civilization and refinement has been co-ordinate with his advancement in science and art. Science enlarges his comprehension of the sublime, and art quickens his perception of the beautiful; and while meditations on what is sublime chasten the soul and elevate the mind, contemplations of the beautiful subdue the grosser passions, and inspire purer tastes and desires. These humanising influences in man's improvement may be traced in every stage of his existence from the beginning. A capacity for science was implanted in him that he might learn to understand the sublime which he adored, and a love of art that he might learn to imitate the beautiful which he admired. As regards art, this capacity is more or less discovered amongst even the most barbarous nations. The savage who tattoos his flesh, is a painter; the barbarian who ornaments his club with carvings, is a sculptor; the Red Indian who constructs his wigwam, is an architect; and even the cannibal who sings in triumph while his enemy is burning at the stake, may be called a musician. These are the wild shapes in which the passion for painting, sculpture, architecture, and music primitively developed themselves; and in proportion as these arts have advanced from the primitive state, we find man advanced in civilization and intelligence.

The condition of a people, therefore, may be determined by its relative distance from that rude state in which the arts are primitively developed, and its nearness to that degree of civilization and intelligence which evokes the genius of a Raffael, a Phidias, a Palladius, and a Mozart. Nor is the



disparity between the untutored daub of a New Zealand artist, and the divine impressions of the great Italian master, much greater than that which may be observed between the industrial products of a people who employ the rudest kind of labour, and of those who call into requisition the highest skill and intelligence. When Leonardo da Vinci invented necklaces, the trade of Venice was in the most flourishing condition; and when Raffael lent his graceful pencil to the designing of patterns for crockery-ware, the Church of Rome, although in its palmiest state, found its power strengthened by stimulating the spirit and genius of art.

Indeed we find, from the earliest period to the present time, that the relative civilization of nations may, for the most part, be measured by the extent to which they have applied the arts to their industrial pursuits.

The Phœnicians were the earliest, of whom we have any record, who applied the arts to their manufactures, and who, consequently, became great and powerful among the nations of the earth. This ingenious people had acquired the art of dyeing to perfection, and the Tyrian purple became the favourite colour as a dye for the rich and costly garments of the then civilized world. In the mechanical arts they had also attained high excellence, for they were cunning workmen in metals, in jewellery, in engravings, in enamels, in porcelain, in glass, and in pottery; and their manufactures fashioned by their own art and labour from the raw materials which they had drawn from the most distant regions were spread far and wide. Their ships also were sailing on every known sea, in search of the richest products, and for sale or barter of their own merchandize and manufactures. "A moment's reflection," says Heeren,\* "upon Tyrian manufacture of woven goods and their dyes, will enable the reader at once to perceive the great importance of this branch of

\* Vide *Historical Researches*.

commerce. *It converted the very wilderness, so far as they were concerned, into an opulent country, which afforded them the finest and most precious raw materials for their most important manufactures.*" It was the "cunning" of the Tyrian artizan which supplied the Jewish maidens with their ornaments—"the cauls, the little moons, the earrings, and the little chains, and the veils; the frontlets, and the feet-chains; the girdles, the smelling-bottles, and the amulets; the rings for the finger, and the nose-rings; the holiday clothes, the petticoats, and the mantles; the mirrors, and the shifts, and the turbans, and the flowers."

This multitude of ingenious articles, so minutely detailed by Isaiah, which were sent forth from the workshops of Tyre and Sidon, enabled the Phœnicians to obtain the richest products of the earth, and to diffuse among themselves and their neighbours the advantages and blessings of civilization. "Fine cottons and embroidered work from Egypt spreadest thou over thy pavilions; dark blue and purple from the Peloponnesus were thy coverings." So that the "busy hum" of industry was kept alive in the distant looms of Thebes and Memphis by the profitable exchange of Sidonian objects of industry, which the application of the arts had so materially enriched. And Sidon, too, was noted for her garments, just as much as Lyons or Manchester is at the present day for their beautiful fabrics. We learn from the historian "that beauty, delicacy, and durability, were the great excellences for which the Sidonian raiment was generally esteemed; and such a combination of qualities could only be obtained by the nicest dexterity of hand, directed by the skilled knowledge of the head."

Nor could the Egyptians have attained their great perfection in manufactures and in monumental structures, which are the wonder even of the present day, had they not caught the inspiration of art, and its almost infinite applications, from their trading and manufacturing neighbours. "There



were," says Heeren, "a colony of Phœnician weavers and artisans at Memphis," and, it is fair to assume, that the "unrivalled walls" of Thebes also enclosed a similar number of those pioneers of civilization. Who taught Egypt the art of mixing colours—of using her precious stones, her metals, and her other rich materials—which are still bright on the walls of her temples, although they have endured the corroding touch of time for three thousand years? Doubtless, the Phœnicians. And not only the art of dyeing, but the art of weaving, of casting metals, of sculpturing, and of decorating in its richest forms, for the winged scarabæus, the lotus, the hieroglyphic symbols in all their minuteness and detail, were the result of Phœnician art transplanted to the banks of the Nile.

We have only to follow this magic excellence of the hand, when directed by the head, and we shall keep in the track of civilization throughout what is called the ancient world. Among the Jews, the Greeks, and the Persians, it has left its peculiar and respective traces—the unmistakeable signs of a once-glorious but departed opulence. The whole valley of the Euphrates, from Nineveh to Persepolis, was filled with the wonder-working skill of the artists, whom Cambyses took captive in his Egyptian campaign, the productions of whom the indefatigable Layard has just evoked from their long slumber to adorn our Museum, and, perhaps, to inspire art with a new order of excellence. And in Greece, whose great masterpieces we are still obliged to imitate, so instinct do they seem with the divinest spirit of art, this magic combination must have pervaded almost all classes, for its fine power is displayed in so many and such various forms. Could we have stepped into the workshops of Corinth, we should have seen that art is the best aid of manufacture, and that the manufacturer has no ally so valuable as the artist. A love of art, therefore, must have been encouraged among the working-classes of Greece, or they could not have been so perfect in their

productions. Works of proportion, and of exquisite beauty, were constantly presented to the eye wherever the workman turned, which had the effect of making him, if not a thinking originator himself, a ready and pliant medium for the original thoughts of others. It is, therefore, a fair inference, from the general excellence of Greek workmanship, that the philosopher, or the *theorist*, as he is sometimes sneeringly called by the *practical* (?) man, was more frequently to be found among the Greek artisans than he is among our modern workmen; and that they fully appreciated his value, whenever his skilled and disciplined mind augmented their industrial power, at the same time that it diminished the severity and duration of their labour.

This productive union of *learning and labour* in the industrial and manufacturing cities of Greece, raised her, in a great measure, to the pre-eminence which she attained, and which has never departed from her.

Again, in what is called modern times, we find the same results, when the same causes have been in operation. Wherever industry has resumed her peaceful and regenerative sway, there generally was art to augment her power and to diversify her productions; and when the latter has been neglected, or could not be brought into operation, then industry sustained itself with difficulty, and, in the long run, inevitably died away. The history of modern times, which is more prominent to our eye than that of antiquity, presents us with several instances of this kind, which ought to be studied with the minutest attention, in order to detect the subtle causes of change, and learn how to guard against the evils that resulted from them.

So intimate, moreover, has been the relation of art and manufactures through all time, that it may be safely inferred that they have mutually supported each other, and that the decline of the one must have been a premonitory symptom of a similar condition of the other. When the manufacturers



of Venice began to lose their supremacy in the markets of the world, partly through the change that intervened in the transit of commerce, and partly also through the rivalry of others who procured the raw material at as low a rate as herself—when orders no longer poured in from the East, and exports began to fall off, then her wealth diminished, her opulent manufacturers began to decline, and her rich galleries of art, which her merchant princes had created, could no longer be replenished, for the source whence they sprung was fast drying up. Art, manufacture, and commerce—the three Industrial Graces—at the same time exhibited the symptoms of inevitable decay, and Venice, like other cities under similar circumstances, felt her greatness departing from her. So too was it with Seville, with Toledo, and with Cordova; and so also with the Flemish cities, once the busy arenas of manufacturing pursuits, but now comparatively unheard in the great industrial din of the world.

## CHAPTER II.

ENCOURAGEMENT OF THE APPLICATION OF ART TO  
MANUFACTURES IN FRANCE.

It has frequently been a matter of regret that something similar in spirit, and equally comprehensive in its object, to the *Exposition Française*, has not existed in this country.

A periodical exhibition of the progress of the arts and manufactures, in every branch of industry, could not fail to have an important effect upon the public mind, and to enlighten it as to the true value of commodities, whether intended for useful or ornamental purposes; just as the absence of right notions, not only as regards the cost of production, but also as regards the new and improved processes by which those commodities are brought within the range of a larger circle of purchasers, is highly detrimental to it. To diffuse a knowledge of this kind, moreover, amongst the community at large, would not only give an immense impetus to the thinking principle, but would also tend to strengthen and encourage the principles of order and economy in the general management of its affairs, which, as yet, are but too partially and imperfectly observed.

Our ingenious neighbour has long established, and reaped the advantage of, periodical Expositions. From the time that her great King, Henry IV., planted twenty thousand mulberry-trees in the Tuileries Gardens, down to the present day even—through all the vicissitudes of the old monarchy, the



storms of the revolution, and the ever-shifting scenes of her recent history, the Governments of France, in one form or other, have steadily directed their attention to her manufacturing interests, and have cherished them, according to their notions of political economy, with the most pains-taking solicitude. The only exception to this general course of policy was the rude threat of Louis Blanc (yet, assuming him to have been sincere, it cannot be called an exception) and his coadjutors, when they menaced the industrial power of their country with destruction, by crippling and controlling it upon the Procrustean plan of the *Ateliers Nationaux*. It happily escaped the maltreatment which those political, yet pitiful, pedagogues had devised, in the vain hope of improving its condition; and, apart from the prohibitory policy which prevents its expansion, the manufacturing power of France is at the present time in as healthy and vigorous a state as at any preceding period of its existence. The character of her peculiar industry—its beauty, its ingenuity, its exquisite taste, its refined elegance—is still highly appreciated throughout the civilized world. In a few leading branches, indeed, France has what may be termed competitors, but no rivals; for as the former advances in imitation, she moves onward in originality, and has hitherto managed to keep her followers at a very respectable distance.

The first Exposition of industrial productions in France took place under the Directory, in the year 1798. The Italian campaign had just closed, and the Government decreed that a splendid *fête* should be given to commemorate the anniversary of the Republic, and the glorious victories which the arms of France had just achieved. M. Neufchâteau, Minister of the Interior, was charged with the regulation of the *fête*; and, considering the times, the character of the people, and the prevalent passions of the day, the economical direction which that enlightened Minister gave to public feeling by suggesting the Exposition, reflects the highest credit upon his

political forecast and sagacity. The proposal for an Exposition of industrial products, according to the journals of the day, was received with acclamation; and on the 10th of September, 1798, it was opened in the Champ de Mars with great pomp and military display. Upon that occasion *Bréguet* obtained his first prize for his superb watches, and *Didot* for his beautiful type, which still maintains its high character in France. The second Exposition took place in 1801, under the Consulate, on which occasion one solitary bronze medal was issued; but issued to whom? To Jacquart, for his figure-working loom, which has more than quadrupled the productive power of Lyons, notwithstanding the significant remark of the report which registers the invention: "L'inventeur," alluding to M. Jacquart, "d'un mécanisme qui *supprime* un ouvrier dans la fabrication des tissus brochés." Yet Lyons has increased in population and in wealth more rapidly than any other city in France, excepting the capital; and that increase, in a great measure, must be attributed to the application of the Jacquart loom to the manufacture of silks. In 1802 the first piece of French muslin appeared, which was pronounced by the examining committee to be English. The years 1804-6 produced higher developments of industrial skill in several branches of manufacture, especially in lace, silks, and woollens; and at these Expositions Ternaux first appears prominently in the foreground—Ternaux, whose skill and enterprise have so materially augmented the industrial power of his country. At that period chemistry exclusively claimed a galaxy of genius, shining brightly amidst the radiant lights in the hemisphere of creative thought and practical intellect; for Bertholet, Monge, Prieur, and Vauquelin, stepped out of their laboratories into the workshops and manufactories, and became the enlightened adjuncts of the inmates of both, not only by diminishing the severity and duration of labour, but also by giving it a more productive, and therefore more powerful, direction.



There were three Expositions under the Restoration, which furnished a vast number of exquisite ornaments for the churches; and the years 1818-23-27 gave evident indications that France had made great advances in the manufacture of woollens, in metallurgy, and in other combinations of mechanical skill. The Exposition of 1834 also afforded another exemplification that the arts and sciences, especially as applied to manufacturing industry, had made rapid strides, notwithstanding the troubled atmosphere in which they were doomed to struggle; and that of 1844 is universally allowed to have surpassed, not only in the beauty and variety of its objects, but also in the skill and taste which they displayed, all and each of its predecessors.

In order to strengthen and consolidate the superiority of her peculiar industry, France has uniformly thrown the legislative shield of protection over the individual productions of her citizens, whether in the form of design, or in the more substantial one of execution; and by this fostering and well-timed policy she has not only precluded them from plundering each other of their respective skill and ingenuity, but has given a powerful impulse to their creative power, which is the real and true source of her artistical and manufacturing excellence.

In the year 1737, the first act of the French Government was passed for the protection of designs in manufactures. This act, and a subsequent one of 1744, had reference to the silk trade alone, and to Lyons in particular, which was then, as now, the chief seat of the silk manufacture; but half a century had scarcely elapsed, when a royal decree extended the same protection to all the silk manufactures of France, the latter, during that period, having made considerable progress. The decree of 1787 contains the following remarkable words:

“The King, in council, having caused to be laid before him the representations and memorials of the manufacturers of

Tours and Lyons, respecting the attacks upon their property, and the general interests of manufactures, by copying and counterfeiting designs ; His Majesty recognises the superiority which the silk manufacture of this kingdom has acquired, is principally due to the invention, correctness, and good taste of designs ; and that the emulation which animates the manufacturers and designers will be annihilated, *if they were not assured of reaping the fruits of their labours* ; that this certainty, in accordance with the rights of property, has maintained this manufacture to the present time, *and secured for it a preference in foreign countries.*"

The decree secured a copyright, in fabrics of silk of various descriptions, for *fifteen years*, for such as were intended for ornaments of churches ; and for *six years*, for all those intended for ordinary sumptuary uses. Heavy fines were imposed both upon workmen and designers, if the former sold a pattern entrusted to his care, or the latter surreptitiously copied it. The first *registration* of patterns in France was also established by one of the articles of this decree. In 1793 the Legislature extended the provisions of the act of 1787 to all the different products of industrial arts, including designers as well as manipulators, without any distinction whatever ; and, animated with the same spirit and zeal, as regards individual protection, the Legislature of 1806 established the councils of *Prud'hommes*, which adjudicated on all matters of dispute among manufacturers, and to whom were referred all questions of infringement of copyright. The duration of the copyright in designs was also fixed by this act, leaving it to the choice of the manufacturer himself, whether for one, three, or five years, or in perpetuity. The penal code of 1810 likewise strengthened the enactments in this particular respect ; and an *ordonnance* of 1825, chiefly relating to *dépôts* for registration, completed the legislation on this important question.



Let us contrast for a moment the spirit of British legislation, as regards industrial interests with that of France. In the year 1787, fifty years after the first legislative act of France, giving to the manufacturers a right of property in designs, the Legislature of this country passed an act for the relief of the London calico-printers, suffering severely through the piracy of their Lancashire competitors, which restricted the term of copyright to *two months*, and the duration of the act itself to one year, which was subsequently extended to 1794, when it was made perpetual, and the protection enlarged to *three months*. The law remained in this state until 1840, when, through the energetic remonstrances of the skilled manufacturers in the various branches of industry, the question of copyright—the heart and soul of a rich and flourishing manufacture—was settled upon something like a rational basis, by extending the term of protection to three years. The result of this alteration has been highly beneficial to all branches of industry, and especially to those in which a large amount of skilled labour, both in design and in execution, is involved.

Well might Mr. James Thomson, himself a calico-printer of the highest order of excellence, exclaim :

“ It is impossible not to be struck, in reading the acts of the Governments of France and England, with the protecting care displayed by the one, contrasted with the seeming indifference and neglect manifested by the other, under very similar circumstances, to the important branches of their national industry.”\*

Not only have we been neglectful in our legislative duties to the manufacturing interests, as compared with our neighbours, but in other important respects, especially as regards the early training of our artisans, we are left completely at a distance. We have already remarked upon the attention

\* Vide *Notes on Calico Printing*.

which France\* has studiously paid to the education of her artisans, by uniformly establishing schools of design in all her centres of industry; and, although such prudent provision may partly arise from political necessity—the limited means of France to afford employment to her population, as

\* Gratuitous schools for Drawing and Painting have long been established, in all the central points of industry, by our neighbours. In Paris they are to be found in every one of the twelve arrondissements into which that city is divided. Indeed, the Arts form a portion of the education of all Catholic children of the working classes. Young men during their apprenticeship, and adults even, can continue their studies at Evening Schools, in most of which prizes are awarded to the best productions, irrespective of the age or condition of the producer. The largest of these schools—in the Carré St. Martin—is noted for the ability of its teachers, and the efficiency of its scholars: the former are *Les Frères Chrétiens*, whose patience, judgment, and nice discrimination of character, are universally recognised, and which enable them to exercise so large an influence over the minds of their pupils. This school has several thousand designs in its possession, and most of them of the highest excellence. There is also a school—*L'Ecole Gratuite de Dessins*—devoted exclusively to females, for the instruction of drawing, designing, and painting, which has existed for upwards of a century. The whole of an old hotel is appropriated for the residence of the mistresses. Again, there is the *Cabinet d'Estampes*, at the National Library, where some thousands of designs may be seen gratis; the works of Ancient and Modern Art at the Louvre, the Luxembourg, and Versailles—all gratuitous, and open on Sundays and holydays; and, lastly, the beautiful productions of Sèvres, and the designs of the Gobelins, to instruct the eye, and to form and correct the taste of the youthful spectator of either sex. Not only is instruction confined to the rising generation, but there are masters even who, wishing to improve their men in their respective occupations, afford, gratuitously, an education fitted for their age and intelligence. “M. Beauvisage,” says M. Stephane Flachet (*Rapport de 1844*), “has other claims on the respect of his countrymen. He does not wish to conceal from his workmen the secrets of his trade” (M. Beauvisage is a large dyer in Paris), “but willingly imparts to them all that he knows, and seems greatly desirous to improve their moral and intellectual culture. With this view he has employed M. Roucourt, an eminent engineer and chemist, to instruct his men in the arts and sciences necessary to improve them in their immediate pursuits, and his vast establishment is filled every Sunday with working-men, anxious and earnest to be instructed. Other masters are imitating this excellent example.”



compared to England, whose vast wealth and resources create a host of occupations, either at home or in the colonies—still it has maintained the excellence of her *special* industry, and enabled her to keep a large amount of the most excitable portion of her people in almost constant and profitable employment.

The love of art, thus early inculcated in the rising mind of France, becomes a portion of its existence. It grows with its growth, and strengthens with its strength. The young student enters early on the study of nature in general, of the human form, of the figures of animals, of foliage and flowers; and also of architecture, colour, and the most exquisite ancient models (especially those in which utility is united with elegance), all of which are turned to good account, when it becomes a duty to take an active part in the world for a livelihood. Not only as a means of acquiring a livelihood ought the study of the arts to be followed, but also as a source of moral improvement, on which account it forms a most valuable branch of education to every intelligent being. By always having specimens of excellence before his eyes, or to which he can easily refer, the taste of the artisan becomes cultivated and improved; he then learns to contemplate objects of beauty with delight, and habitually and instinctively discriminates between them and works of inferior merit.

It was a fine saying of Charles Lamb, that poor people's children are *dragged* up, and that rich people's children are brought up. There is a beautiful and remarkable truth in that saying of the gentle philosopher, and how pithily expressed! It was also remarked by another genius, whose genial nature was almost equal to that of Lamb, that the reason why the children of the high-born and wealthy in this country are, in general, so beautifully formed, and so graceful in their appearance, is, that they are surrounded with objects of the choicest nature; that art and science, in

one form or other, is ever on the strain to administer to their wants, to expand their desires, and to gratify their wishes. Reverse the picture, and contemplate one of Charles Lamb's *dragged-ups*. Well may premature cunning and precocious craft, be stamped upon its features; its existence is in the cold shade of life, with little that is beautiful but its own innocent thoughts to contemplate, which necessity too frequently turns to an ugly account, by giving them a distorted and evil direction.

There is also another point deserving of notice, while comparing the difference between France and England, as regards the elementary education of the rising generation.\*

\* Lord Brougham, with his usual felicity of expression, and with his characteristic energy, has placed the subject of education in this country in its true light. In a letter on Law Reform, addressed to Lord Denman, his Lordship remarks, in a foot-note: "We are still without any system of primary instruction whatever, while France, Belgium, Holland, Germany, Switzerland, following the example of Scotland, have each a system. But with us all parties, and all sects, are friends of popular education,—only, they are still greater friends of victory over their rival parties, and rival sects; and thus, between them, education falls to the ground. . . . . It may safely be said that no nation boasts its own virtues so loudly as the English, and none has done so little for the instruction of the people—the first duty of any civilized state." That there is a wholesome craving for elementary instruction in this country, in almost every branch of useful knowledge, is manifested in a variety of ways, and in none more than the desire to receive it when presented in a practical form. One, among several instances, may be cited with advantage, as it clearly exemplifies that good intentions, enforced and illustrated with ability, are always justly appreciated, wherever public utility is the object. In an able and pertinent address, on the opening of the North London School for Drawing and Modelling, Mr. Cave Thomas, the Head-Master, remarked that, "Above one hundred and fifty names have been already enrolled as students; this fact is in itself a triumphant refutation of those who asserted 'that such a school was not wanted, and that it would never do.'" There are now upwards of two hundred students, "And numerous applications," says the intelligent Master, "have also been made by women, for whom a class is about to be formed." *Macte virtute!*

Since the preceding portion of this note was written, the Report of the



In nothing have foreign countries possessed a greater advantage over us than in their numerous galleries devoted to the arts, and opened gratuitously to the people. The large towns in France are generally adorned by such institutions. In this country we can scarcely boast of any, if we except the National Gallery, an almost recent creation. Our exhibitions are usually periodical; a fee is demanded for admission, and modern works only are exhibited. From such exhibitions the poor are necessarily excluded. Even those who can afford to pay seldom enjoy the advantage of contemplating perfect specimens of beauty, or of imbibing the pure principles of art. Among our workmen a great desire exists for such public exhibitions; and wherever it is possible, they should be accessible after working hours, and admission should be gratuitous and general. A small obstruction is frequently a virtual prohibition. The humbler classes of this country have already proved that they can appreciate objects of art—that they can respect them, even as objects of property, and reverence their intrinsic excellence. The quiet demeanour, the thoughtful and inquiring obser-

Government School of Design has appeared, which gives the following satisfactory results, as compared to our former efforts in a similar direction: "In both Schools, that which has been at various times so much remarked upon—the want of instruction in, and production of, original designs for manufactures—will be found no longer a cause of complaint. In the exhibition of the works of the two Schools in January last, out of the number of 6642 works produced in the Head-School, 345 were studies in design, and original designs for various manufactures; of which 182 were by the students of the male, and 163 by those of the female school. So that, while a sound elementary instruction is most carefully attended to, the design section of the school is steadily increasing, and obtaining the notice of our manufacturers."

We are also glad to perceive that similarly encouraging results have been realized at Manchester, Coventry, Norwich, Nottingham, the Collieries, Paisley, Birmingham, Leeds, Sheffield, Newcastle, Glasgow, and Belfast, all of which reflect the greatest credit upon the vigilance and pains-taking care of the Government.

vations, which the artisans occasionally make at exhibitions, and the uniform abstinence from all violence, clearly indicate that the working classes are possessed of qualities, whose value they are little cognisant of themselves, and which have never been nurtured and cultivated by those placed above them in a sufficiently generous and confiding way.

From these remarks it may be inferred, that in practical design, whether in its highest or its humblest walks, little has been accomplished by instruction in this country; and that a greater development has been given to the diffusion of art by despotic governments than by our own, although we are pre-eminently a manufacturing nation, and therefore are more urgently in need of suitable instruction than our neighbours, from the fact that an excellence in manufactures can only be obtained by a practical proficiency in the arts.

One more observation on this head. An able and eloquent French writer remarks—"that invention is civilization; the inventor is the author of all the combinations that God has not made; he is the continuer of His work, the promoter of all advancement. The inventor is the first man in the world, for he makes something out of nothing, gives a value to what was valueless, motion to inert masses, power to weakness. Watt, in imprisoning steam in a cylinder, has given to England fifty millions of hands; nature had not furnished her with this immense appliance. All which exists on this side brute nature is the work of invention. Inventors seek out and find new processes, simplify mechanism, diminish bodily labour, shorten distances, explain phenomena, subdue the elements, and transmit them tractable and powerful into the hands of men. They are the head and soul of a nation; without them there can be neither progress, nor riches, nor power. The country which possesses the most of them renders its neighbours tributary and subservient to itself. Other nations will buy its books, pictures, designs, colours, stuffs; they will require also its laws, regulations, plans;



they will visit its monuments, depositories, schools—for all this is so much invention. Mind works equally in the arrangement of a chart or poem, a picture or an art; while one genius combines parts of machinery, another arranges hemistichs and rhymes, lines and colours, black and white. The people which have no contriving powers are savages, and remain so until the inventor civilizes them. An idea is the property of him who first possesses it.”\*

And so fully has France seized hold of the spirit and truth of the above remarks, in her legislation on commercial affairs, that the cost of a patent for any new invention, however limited in its scope and application, or however massive in its power, is about *twelve pounds*, while the cost of a patent in this country is from *one hundred and fifty to three hundred pounds*. In Spain, the cost varies from £10 to £60; in the Netherlands and Belgium, it runs from £6 to £30; in Austria, it is £5 16s. 8d., with 11s. 8d. a-year additional; and in America (the most enlightened of all legislators on this head), a patent only costs £6 10s.

\* *Rapport de l'Exposition de 1834*, par M. Jobert.

## CHAPTER III.

THE COMPARATIVE SKILL OF FOREIGN AND ENGLISH  
INDUSTRY.

WE have already remarked that so long as England retains her skill, her capital, her command over the raw materials of nature, her superb mechanical power, and, above all, the extraordinary industry of her people, she has little to apprehend as to her industrial supremacy. These advantages have gained for her a commanding *position*, such as the market in which the greatest variety of manufactured articles in the world are to be found concentrated on a single spot, an unlimited power of production, and the means of immediate transport to any quarter of the globe.

If we examine the industrial condition of our neighbours, we shall find that in almost all these elements they are comparatively deficient. Nor is this deficiency confined to one or two branches of industry, but is more or less exhibited in all; for nearly every section of the manufacturers, not only of France, but also of Prussia and Belgium, repeat the same chapter of lamentations, though slightly varied—namely, the high price of the raw material, the scarcity of fuel, and, *as regards physical power*, the deficiency of labour.

Nor is this opinion based exclusively upon our own observations and deductions, but is entertained by many intelligent foreigners, a few of whom acknowledge its justness, though with evident regret, and with the most



cautious reserve. M. Stephane Flachet, in his *Report on the Exposition of 1844*, remarks, when describing the state of the Porcelain manufacture—and similar remarks are made upon almost all the great branches of industry, by the same intelligent writer:—

“In every case it is placed beyond a matter of doubt that the manufacture of Porcelain (in France) has made great progress, not only in the quality of the articles, but also in the improved manipulation of our workmen. But we have seen in the Potteries of Staffordshire a workman who, with a couple of apprentices, could turn out three thousand six hundred plates, in the rough, in a single day of ten hours’ duration; while the most active of our workmen could not make a *third* of that quantity. In the finish, too, the contrast was still greater; our workmen could only complete fifty plates, while the Englishman, with his single apprentice, could finish six hundred in the day. Allowing for the superiority of the English material, there is still an enormous disproportion between the manipulating skill of the English workman and ours, which can only be accounted for by the division of labour, which is so well understood in England and so little understood in France. . . . . We have made this digression in order to show the effect of the division of labour, which, perhaps, is least practised in the manufacture of porcelain; nevertheless, *the greater portion of our manufacturing industry exhibits, in different degrees, the same imperfect method of manipulation.*”

*Mutatis mutandis*, these remarks will equally apply to the manufacture of cotton, of woollens, of iron, and of several other branches of industry, where dexterity of manipulation, and almost savage energy, are required to ensure success against competition.

But, although we may surpass France, and other continental states, in obtaining cheaper raw materials, and in the rude energy of manufacturing labour, which have secured us

a pre-eminence in the markets of the world, of the useful articles of life, still, it must be acknowledged, that the former is somewhat a-head of us, more especially in those branches of industry into which a large amount of skilled and minute labour, a refined taste, and a delicate manipulation, enters. We shall point out the excellence of France in every respect, just as minutely as we have endeavoured to point out the peculiar excellence of England, so that we may arrive at just conclusions respecting the relative skill and industry of both nations.

France has devoted great attention to chemistry, and has applied its secrets to the improvement of her manufactures, and to the development of the several branches of her peculiar industry. The reputation of her operative chemists is as well established as that of her men of science. "We shall appeal," says M. C. Dupin, in his *Suggestions to the Producers and Manufacturers of France*, "to the chemical arts, brought in France to such perfection, for the preparations, more numerous every day, of oxides and acids, alkalis and salts, which are supplied to every nation by the commerce of France; here we may exhibit productions remarkable for their invention, improvement in the mode of preparation, and diminution in the price. The preparation of colours owes no less to French ingenuity—witness the artificial ultramarine. The art of reducing into impalpable powder dyeing substances, and matters which are used in pharmacy, has made new and remarkable progress in France; in this, mechanical ingenuity has succeeded in combining simplicity, cheapness, and efficiency."

All this is very true, and we rejoice to find that our ingenious neighbour is keeping pace with the teeming wants of the age, for she has been a powerful instrument in creating and maturing those wants, in the advantage of which all nations have, more or less, largely participated. The fine intellect of France has given a grand impulse to the civilization of

modern times, more especially in the peaceful and enriching walks of art, of science, and of industry. Her comparative proficiency in the secrets of chemistry has secured her an advantage in the manufacture of silks, as the beautiful and diversified colours which she imparts to that manufacture clearly proves. And in the printing of muslins, cottons, &c., France equally displays the surpassing beauty of her taste, and the exquisite perfection to which she has arrived in the composition of colours. We find also the same skill and excellence pervading every other branch of industry, where chemical agencies are more immediately required. In perfumery, in preserved fruits, in preserved articles of food, you may detect the secrets which she has so ingeniously wormed out by chemical analysis; in the preparation of hides, in the manufacture of leather, in the materials for artificial flowers, you may trace the same presiding intelligence; and, above all, in her beautiful bronze productions, in her paintings on china and porcelain, in the exquisite "cunning" and mystery of her "Parisian fabrics," you may observe the secret magic which France has wrung almost wholly from the science of chemistry.

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#### MANUFACTURE OF SILK.

The silk manufacture of France has always ranked amongst the most perfect branches of modern industry, and has given her hitherto a commanding influence over the markets of the world, as regards the consumption of that beautiful fabric.

The quality of the raw material, and the minute attention which has been paid in France to its cultivation, by supplying the worm with the most wholesome food, and carefully attending to its condition, may be cited as one of the principal causes of her present excellence in this branch of manufacture; for the raw silk of France is the finest and most



flexible of any in the world, not excepting the choicest productions of Italy, which seldom realize so high a price in the market as the best quality of Provence. In addition to growing the finest quality of the raw material, she has directed her highly-cultivated taste, both in the combination of colours and the beauty of design, to almost every branch of its manufacture; hence you find the higher class of her fabrics in every capital of Europe, and always purchased with avidity by the highest class of consumers.

Yet, in spite of these advantages, the superiority of France is gradually diminishing, and is principally confined to the quality of *taste*, for she has the whole of manufacturing Europe, and especially England, who has within these few years made great advances, to contend against, and the struggle is by no means sure to terminate in her favour, even on this limited ground.

"The time is not far distant," says the intelligent writer of an article in the *Annales de l'Industrie de la Soie en France*, a publication of acknowledged merit, "since France had the monopoly of the manufacture of silk. People came from all parts of the world to purchase the productions of Lyons, St. Etienne, Nismes, and St. Chamond, both figured and plain, whether of the most sumptuous or of the simplest quality. Unfortunately the field of industry requires constant and vigilant attention, and with all our energy we have competitors, as it were upon our own ground, for England, Switzerland, Belgium, Prussia, and Austria even, have entered the arena against us.

"But it is *from England that we have most to dread*, for she draws from her vast colonial possessions the raw material in such abundance, and at so much cheaper a rate than we can command, that the most fatal rivalry is to be expected from her. There are different means, it is true, of producing an article cheaply—the perfection of machinery and the excellence of our workmen; but the most important of all is the

abundance and cheapness of the raw material, and it is impossible to sustain, in the long run, the struggle for supremacy, or even equality—and the moment we cease to be supreme, or, in other terms, lose the *prestige* of fashion, which exercises so powerful an influence over demand and supply, we instantly become inferior—unless we are placed upon a par with our competitors in this respect. But in France the supply of raw silk has not kept pace with our manufacturing demands, and almost every year we are obliged to import from fifty to sixty millions of kilos. from our rivals; it is, therefore, impossible to maintain our ground unless we adopt a different course, by producing a supply from our own soil equal to the demand of our manufactures.”

Vain and fruitless effort! The cultivation of silk in France is limited, and must necessarily be so from the want of capital, if its extension were not prevented by the repulsive condition of landed property in that country, arising from the continuous *morcellement* of the soil—the greatest curse ever inflicted upon an agricultural people. And even supposing capital were in abundance, and the soil in the most healthy and vigorous condition for the growth of silk, still it would not be policy to stimulate it beyond the point when it would yield the *minimum* of profit for the *maximum* of outlay; for the silks of France, from the fineness of their texture, and their comparatively high price, can never equal, for general purposes, the silks of China, or even the best of those of Bengal and Bruseia. In point of quality there can be no question of superiority between French and other silks; but even quality is materially influenced by the improved processes, which have been brought to the highest perfection in this country, for *throwing* and preparing the silk for manufacturing use. While the silks of France are realizing about thirty-two shillings per pound in the market, the Chinese is worth about from eighteen shillings to twenty-one shillings,

and the Bengal from ten shillings to fifteen shillings ; and when the China silk, with its excellent *nerve*, is sorted and properly *thrown*, it is superior to the French for a large number of purposes, especially where dying is concerned, for it is unequalled, being white in the gum, in its reception of light and delicate colours. France, within these last ten years or so, has discovered the importance of the Chinese and Bengal silks, and has largely imported both from this country, to mix with her own. But there is another point in relation to the impending struggle between France and England, as regards the manufacture of silks, namely, the superiority of our throwing-machinery, a matter of the highest importance. At this time, even, the waste silk is bought up in France, sent over to England, and returned in a thrown state ; and although a duty of two francs the kilogramme is imposed upon its entrance there, it is cheaper and better than any thrown in the best establishments of France.

In order to estimate the progress of the silk manufacture of this country, and its chances of competing with its skilful and ingenious rival, both at home and abroad, we must take a cursory glance at the nature of our imports in a manufactured and raw condition. When we examine the nature of the exports of France to England in silks, we find a vast difference in even the last ten years. Formerly, a large quantity of plain silks were imported ; now they form but a comparatively small portion of the imports. The reason of the change is obvious. A great improvement has been effected in England in the manufacture of silks, especially where there is no complication of figures to preclude the *power-loom* from being applied. Hence, coupled with the low price of the raw material, we can supply neutral markets, and beat our former rivals, in point of cheapness and quality. Our exports to America are much larger than those of France, especially in plain silks ; and the cheapness of printing the



Indian corahs, which we largely import, even enable us to export to France, where they meet with a large and ready sale amongst certain portions of the peasantry.

Indeed, the English manufacturers are sharply contesting with France this queen of her industries. Since the duty upon the importation of the raw material has been abolished, the manufacture of silk has taken a surprising start, and numerous factories have sprung up both in England and Scotland; whereas, before that period, the manufacture was almost exclusively confined to Spitalfields. The reduction of the duties on manufactured importations has also been productive of substantial and permanent benefit to the trade. The official value of raw and thrown silk imported into Great Britain in 1826 was *one million and a quarter odd pounds' weight*, the consumption of which equalled *one-third* that of France; but in 1844 the relative consumption, according to official data of the two countries, stands thus:—

| FRANCE, 1844.  |                 | ENGLAND, 1844. |                          |
|----------------|-----------------|----------------|--------------------------|
|                | lbs.            |                | lbs.                     |
| Home produce . | 1,971,036       | }              | Imported . . . 4,572,298 |
| Imported . .   | 2,157,480       |                |                          |
|                | <hr/> 4,128,516 |                |                          |

From these returns, whose accuracy cannot be questioned, it appears that in the course of little more than eighteen years, our manufacture of silk has increased nearly threefold, while the increase of our neighbours has been about one-third, or in the proportion of ten to twenty-six.

Yet, in all matters of taste, where beauty of design is combined with the most exquisite arrangement of colours and the highest finish, France still keeps a-head of us, although some of our manufacturers have exhibited qualities of a similar nature which do not leave a large margin of supremacy in her favour.

Let any competent judge examine the productions of Messrs. Campbell and Harrison, and those of Messrs. Carter and Vavasseur, and of Messrs. Seamer, all of whom are excellent in their several walks, and in some instances superior even to the French, and then turn his attention to the active-minded manufacturers of Manchester and Macclesfield, among whom he will find an order of excellence peculiarly English, and with which France has not the slightest chance of competing ; when he cannot fail to arrive at the conclusion that we are progressing rapidly in the manufacture of silks, that we are annually narrowing the ground which separated us from France, and that we are giving every promise to be able to compete with her even in her own markets. It ought, moreover, to be borne in mind, that no industry can sustain itself long whose superiority is limited to the highest branches, and which feels itself almost daily worsted in the inferior, for the one is necessarily dependent upon the other—indeed they mutually support each other—and can no more be separated than it is possible to separate the Corinthian capital from the column upon which it rests. The same remark will apply to ribbons ; for in this department of manufacture Messrs. Cox and Co., and Messrs. Cornell and Co., have shown that in point of taste and execution of design, they are almost equal to the French, while, in respect to quality and cheapness, they are decidedly superior. As regards plain ribbons, the power-looms of Messrs. Cope, of Coventry, and those of Messrs. Brunskill, of Paternoster Row, have completely set that branch of the question at rest. Formerly, we used to import plain ribbons from Switzerland in large quantities, and from France also ; now, there is scarcely a single piece comes from the former country, and only a limited quantity from the latter, which are rather influenced by the caprices of fashion than by the superiority of quality.

## PRINTED COTTONS, &amp;c.

In this branch of manufacture, France stands confessedly at the head of the list. Her refinement of taste, her elegance of design, the results of her skilled education in the arts and sciences, have secured for her an advantage, as regards printing on fabrics, which no other nation possesses. Yet, here again, we perceive the symptoms of decline manifesting themselves in the same ratio as may be observed in the silk branch of industry, and from precisely the same cause—namely, the impossibility of maintaining a superiority in the highest branches of an industrial pursuit, while the lower ones are not in a correspondingly prosperous condition. Although France still excels us in the higher branches of cotton-printing, and her productions maintain their supremacy, as regards elegance and taste, in our markets, still she has been, during the last ten years, comparatively stationary, when measured by the progress which we have made in the same branch, and in the same period of time. Neither Rouen nor Mulhausen can compare with Manchester or Primrose, either as regards power of production or the order and arrangement of their respective establishments; in one thing only do they surpass them—in beauty of design and charm of colouring; in every other respect they are far inferior. The establishments of England denote power and progress; those of France seem to indicate perfection and approaching feebleness.

In a work of small compass, but of great value, the *Notes on Calico Printing*,\* by James Thomson, Esq.,

\* While these sheets are passing through the press, our attention has been called to the obituary of the *Times*, which records the death of the gentleman to whose work we are indebted for many valuable suggestions, as regards the relative condition of French and English printing on fabrics. We knew him long, and knew him well; he has gone to his account full of honours.



F.R.S., which we have quoted before, we find some remarks so *à propos* to calico-printing, both in France and England, that we cannot refrain from quoting them :

“ Connected with the subject of labour and production, and intimately with that of foreign competition, is the following account of the print trade of France, derived from statistical tables drawn up from the most authentic sources by my friend, M. Koechlin-Schouch, of Mulhausen, himself a distinguished printer. It appears that the whole production of Alsace in 1827, amounted to five hundred and twenty-seven thousand nine hundred and thirty-five pieces of thirty ells each, which is equal to eight hundred thousand pieces of English lengths and widths ; and this production employed eleven thousand two hundred and forty-eight individuals, not including the manufacture of the cloth. This gives the result of seventy-one pieces per head, as the production of the whole population, which, when compared to five of the first-class English printers, whose productions involve as large an expense, is calculated to excite surprise, as the latter will amount to upwards of two hundred per head. *With every allowance for the high character of their productions, the greater care bestowed upon them, and the more laboured nature of their styles, the difference is too great to be accounted for by any or all of those causes. . . .* This limited production in proportion to the hands employed, has a deeper source than in styles which may be varied and simplified at pleasure. It is to be found in the *character and*

It is to the rare combination of talents which were presented in the person of the late Mr. Thomson, that England, in some measure, owes her present greatness. His mind was a complete storehouse of learning, science, and the most varied practical intelligence ; and all these acquirements were guided by a refined taste, which was equally as conspicuous in his thoughts as in his actions. He built up his own fortune by his innate strength of mind, by his uncompromising integrity, and by his extraordinary and unwearied industry. He was essentially *British*, and resembled, in many respects, the late Sir F. Chantrey, and Mr. John Walter, of the *Times*.

*habits of the people*, which cannot be changed or moulded at the will of a task-master, nor can an English day's work be had in France for an English day's wages."

Again, as regards the relative energy and industrial *pluck*, if we may be allowed the term, of the English and foreign workman :

" In 1814 I saw France before she had time to profit by the industrial skill and improvements of England ; again in 1817, and in 1824, when I examined with anxious care, during a prolonged stay, the grounds of the prevailing apprehension, that our manufacturing greatness was declining, and that the cheap labour of France would more than compensate her many disadvantages. I returned home with the conviction, since, and now again confirmed, that the labour of Alsace, *the best and cheapest in France, is dearer than the labour of Lancashire*. I would not aver that an English workman would perform twice the work of a workman of the same class in France, but of this I feel assured, from frequent personal observation of their habits, and from long and confidential intercourse with their intelligent and enlightened manufacturers, that the advantage *is more than twofold* on the side of England, and that the true result is not to be obtained by comparisons between individuals, or even classes of men, but in the comparative aggregate industry of large establishments, or a whole population. . . . . Twenty years ago, the cry was 'France will beat and undersell us.' That delusion has passed away, and twenty years' experience has shown\* that she cannot spin a cotton thread as cheap as we can, with all the advantages of our improvements, and the assistance of English workmen. Of our ability to compete with them on their own soil, their absolute prohibition of our goods is the most convincing proof; as is the free admission here of theirs on a duty

\* Vide *L'Enquête sur les Prohibitions*, 1835.

nominally of ten per cent., but, as is well known to themselves, practically of not more than five. How can they compete with us in neutral markets, when they are unable to do so in their own?"

These observations are the result of practical experience of a somewhat diversified kind, for Mr. Thomson was the head of a large firm, which had mainly grown up under his own fostering hand, and in which were employed, to use his own words, "nine hundred and thirty hands, men, women, and children, whose average weekly wages were 12s. 5½*d.* per head, and the total amount paid during the year £30,129," therefore must carry with them the weight of conviction. Indeed, there were few minds so nicely disciplined to arrive at correct conclusions as that of the late Mr. Thomson, for he acquired, by dint of hard industry, the rare faculty of knowing *how* to observe, and *what* to observe, which he turned to profitable account in his various visits to the continent, when he never failed to closely examine every establishment of note, and to adopt every improvement, however large might be the expense involved.

The chances, therefore, of France competing with us in cotton-printing is reduced to two—elegance of design, and beauty of colouring, in both of which she at present excels us, although not unapproachably. In every other respect, as regards this branch of industry, we are far a-head of her, and must soon realize the anticipation of Mr. Thomson:—

"What the foreign merchant wants in a good print is good taste, and good work, for little money; that is, *French taste with English cost and execution*—that cost and execution which, taken together, have enabled us hitherto successfully to compete with, and to excel, all the world. We have long possessed the latter; the former—that is, the *taste*—we are rapidly acquiring."



## GLASS.

The manufacture of glass in this country has received an immense extension since the alteration in the tariff and the reduction of duties have taken place. Several branches of the art had formerly great difficulty to maintain the struggle against the competition of the foreigner, and in one or two we were evidently losing ground, from the disadvantages resulting from our fiscal regulations. In the manufacture of the raw material we are now unexceptionably occupying the highest place, and have acquired this advantage by our large capital, our superior chemical knowledge, as applied to this branch of industry, and to the indomitable energy of our character. Even our foreign competitors acknowledge our superiority in these respects; it is taste alone which they deny to us—taste in the form and beauty of the models—and to which they lay almost the exclusive claim.

“For a long time,” says M. Stephane Flachet, “England has excelled us in the manufacture of glass, especially crystal-glass. The precise cause is not known; it does not appear in the mode of fusing it; more probably it may be attributed to the purity of the lead which they use. We know how poor France is in this important respect, for every year we import from fifteen to sixteen millions of kilos. of this metal, principally from Spain. It appears that England, who has a larger consumption for lead than we have, can obtain it in a superior condition.”

And the same author, in acknowledging our superiority in another form, throws a curious light upon the *morcellement* of property in France, which materially retards her industrial progress:—

“The French glass is inferior to the English in this respect—it changes much sooner when exposed to the air. Our manufacturers declare that the difference does not arise

from an inferiority of workmanship, but from the *division of property* in France, which compels them to produce glass at a low price, by an extra infusion of alkali, which materially reduces the cost. It is certain that glass is much dearer in England (this was written before the duty was taken off glass in this country, which has caused a material reduction in price) than in France. The excess of alkali which the French glass contains is slowly absorbed by the atmosphere, when it immediately loses its transparency."

Nor do we agree with M. Dupin, when he asserts in his *Suggestions*:—"We enter the lists with advantage in the superior manufacture of glass; we must exhibit our mirrors polished by an improved process, our glass coloured by an ingenious chemical application, and the glass manufactured with zinc instead of lead, which gives promise of increased refractive power to our lenses for optical and astronomical instruments."

If we except the remark upon the superiority of the refractive power of the French lenses, which we gladly acknowledge, whether it is produced by the substitution of zincs or no, we must deny that the French glass, even in its best condition, will enter the competing lists with any superior advantage; indeed, if there be any truth in the following extract, which we fully believe, a contrary result must obtain:—

"One of the most important points," says M. Stephane Flachet,\* "in the manufacture of glass, is the polishing. This operation is effected by a superior mechanical process. *They are more advanced in England than we are in France* in this respect, as the large fortunes of individuals in that country furnishes the manufacturers with a rich class of customers, which enables them to finish the glass in a higher condition. The French glass, it is true, is of a whiter tint;

\* Vide *Rapport de 1844*

but the English glass has less defects. The first arises from using wood in our foundries, whereas the English use coal."

The two large glasses exposed by Saint-Gobain and Saint-Quirin, are quoted at seven thousand four hundred francs and seven thousand seven hundred francs, to which must be added ten per cent. for silvering. These prices measure the progress that has been made in this branch of industry; therefore, we may as well compare them with the following price-list of the *British Glass Company* in London:—

| Height. |    | Width. |    | Price after silvering. |    |
|---------|----|--------|----|------------------------|----|
| m.      | c. | m.     | c. | frs.                   | c. |
| 3       | 30 | 2      | 10 | 5,149                  | 28 |
| 3       | 72 | 2      | 10 | 5,924                  | 54 |
| 4       | „  | 2      | 7  | 6,317                  | „  |

The last dimension is equivalent to about twelve thousand one hundred and sixty-eight square inches, and fixes the price per inch at fifty-two centimes. The dimensions of the Saint-Quirin glass is fourteen thousand seven hundred square inches, and is quoted at eight thousand four hundred and seventy francs, which amounts to fifty-seven centimes the square inch.

Here then we have a considerable per-centage in our favour, upon the testimony of an impartial and highly-competent witness; and it must be borne in mind also, that this comparison was instituted some time before the abolition of the duty in this country, which has given a vast impulse to the manufacture of glass, and materially reduced its cost.

It must be confessed, however, that the French and Bohemians excel us in the art of imparting colours to glass, which gives so varied a beauty to their productions; but in the purity of the metal we greatly excel them, and are also strongly competing with them in the more skilled and tasteful



branches of the manufacture, as may be proved by an inspection of the large *dépôts* in this country.

The Messrs. Osler, of Birmingham, who have a large establishment, 44, Oxford Street, London, can furnish a display of manufactured glass which is unequalled on the continent, either as regards the ornamental or the useful, although wages are about fifty per cent less in Bohemia, and about forty per cent. less in Paris, than they are in England. But the extraordinary energy of our working-men, their dexterous manipulation, together with the great command which our manufacturers have over the raw material, more than neutralize the advantage of low-priced labour, and place them a-head of the foreigner. The productions of Messrs. Osler have clearly established this fact. The diaphonous purity of their flint-glass, their manufacture of lustres, candelabras, and chandeliers, have opened a new branch of industry, and upon a scale which the foreigner has not even contemplated imitating, much less attempting to rival.\* Nor are they deficient in the ornamental, which combines taste, design, and execution, all of which qualities are exhibited even in objects for ordinary domestic purposes. In fine, Messrs. Osler have proved that England can successfully compete with the foreigner in the ornamental, and far surpass him in the useful branches of glass manufacture.

The art of painting on glass is practised to a greater extent on the continent, especially in and around Paris, than in this country—an art which, erroneously, was supposed to be lost; but, strange to say, it has been revived in France by an

\* The candelabra manufactured for Ibrahim Pacha, was the first effort of industry, on so large a scale, in the manufacture of glass ever attempted; and a similar effort, but upon a still larger scale, which the Nepaulese Prince purchased, has placed beyond all comparison the skill and richness to which we have arrived in the art of manipulating glass in this country. The first measured seventeen and a half feet high; the latter twenty feet six inches, and weighed upwards of a ton.

Englishman, which seems to rebuke the shallow, and too-readily believed assumption, that our countrymen do not possess the genius and capacity of the foreigner.

"There is a prejudice too readily entertained," says M. Flachet, "that the secret of painting upon glass has been lost for many ages; therefore we admire the painted windows of our churches, not so much for the beauty and harmony of their colouring, as for the supposed secret of the art which is enveloped in so much mystery. This is an error; the art of painting upon glass, it is true, was not practised in France after the seventeenth century, but it was known and practised in Germany, and especially in England, some time after that period. Some years ago Sèvres exhibited, at one of the Royal Expositions, some painted glass, which elicited general admiration; in many respects it was superior to the ancient productions, and certainly inferior to them in no one point. *An English artist*, Mr. Edward Thom, who had been invited to France by M. de Noe, gave a new impulse to this branch of art, and materially established it amongst us. The first experiment of painting on glass by M. Thom was made upon the windows of the church of Saint-Elizabeth: since that period he has been attached to the establishment at Choisy-le-Roi, and has given great extension to the art."

As the genius of the continent will be exercised to an unwonted extent, in order to maintain its reputation in the various branches of industry in which, hitherto, it has been pre-eminent, at the *Grand Industrial Contest* of 1851, we shall endeavour to estimate its probable success when measured with our own, which is already up and doing, and seems animated with a proper conception of what it ought to do, and what is fully expected from it. The beautiful discovery of *silvering glass*, which belongs to Mr. Hale Thomson, of Berners Street, is an earnest that we shall not be found wanting when the great day of judgment arrives, as to capacity and ingenuity; nor is the discovery unappre-

ciated by the continent, if we may judge from the *Frankfort Zeitung*, whose pictorial description we shall partly borrow, in order that our readers may fully estimate its importance:

“One department,” says the *Zeitung*, “of manufacture it was thought Germany would excel Britain in, was ornamental glass in colours, generally called Bohemian glass; but the English have recently attained a spontaneous perfection in a branch unknown to us, and altogether inimitable, we fear, however well known hereafter—namely, *silvering glass*. This is not only as applicable as Bohemian to every purpose of ornament or utility, but to endless others, many of great importance, especially reflectors for astronomical instruments, railway carriages, lighthouses, and the like, for which it is peculiarly suited, from its capacity to throw back rays, and because no cleaning or polishing is ever required, more than a window-pane or common tumbler. The silvering is indestructible in composition, and is coated over with glass, the vividness of whose colours, however varied, are thus infinitely heightened, and the most delicate carvings upon them are so brought out as to recall the old Byzantine mosaics in their multiplicity of tints, and lustrous harmony of combination. The surface of the smallest toilet-bottle, or the largest vase can be coated with silver, which imparts to it a brilliancy far surpassing the ordinary amalgam applied to looking-glasses; nor can it be tarnished or impaired, except by destroying the article itself. The metallic radiance of this deposit imparts a combined sparkle and warmth, quite beyond the Bohemian, which is comparatively tinselly and pretty; *there is, also, the important fact that British glass is far superior to anything elsewhere produced*. Hence, taking quality of material, the English is on a par with Bohemia in price, and the beautiful and unique silvering is so much additional gain. The richness and purity of British crystal admit splendour and voluptuousness of dyes



that must satisfy the most exigent fastidiousness : hence, the purples, sapphires, pinks, vermilions, pearls, bronzes, &c. ; in short, every chromatic hue thrown up by this new argentine reflection, has the gorgeous glow of the antique Venetian glass, the secret of which is now a lost art ; but whereas the Venetian absorbed the light, and had to be held up to it before its softened beauties were revealed, the English silvered glass flashes back the light, and is seen best at night, or when surrounding objects are in comparative gloom. . . . It is impossible to exaggerate the results of this invention. We trust our German manufacturers, at the *Great Exhibition* of 1851, will investigate the mystery. At the glass-silvering works, it is stated, there are vases as high per pair as six thousand Rhenish florins (five hundred pounds sterling), nine-tenths of this cost being incurred in designing and engraving alone. Indeed, in design, English glass has made immense progress ; and the goblets, *épergnes*, candelabra, wine-coolers, &c., now referred to, are equally objects of *vertu* in classic beauty of form, and of commercial importance for suitability to the taste of the age. But, as if to exemplify the adage, that the closer to simplicity the greater the art, perhaps the *chef-d'œuvre* in this manufacture are mirror-globes, of plain-silvered surface, all sizes, from 2 to 30 inches in diameter, from half a pint to 40 gallons. These, placed on bronzed figures, as an Atlas, or eagle, or attached to chandeliers, are a most striking appendage to a drawing-room or banquet-hall.”\*

\* While these sheets are passing through the press, the following confirmation of this beautiful invention will be read with interest :—Among the more remarkable embellishments of the banqueting-hall were various productions in the beautiful new art manufacture of patent glass silvering, prepared for the occasion, as being peculiarly appropriate to a festival inaugurating the approaching congress of the artistic industry of nations. These specimens consisted of gilt, silvered, and bronzed figures of eagles and Atlas bearing large globes of glass, on whose silvered surfaces the whole scene was vividly reflected in miniature. Next were two highly-chased salvers, on

This beautiful invention, which amply deserves the glowing admiration which our continental contemporary has expressed for it, will open a new and diversified field of industry, the limits of which it is scarcely possible to conceive, much less define.

Nor can we limit our observations upon glass without bringing before the public another beautiful invention, which is capable of almost endless application, and must materially add to the comfort, the convenience, and the economy of the public, if we even confine ourselves to its useful qualities ; but as regards beauty of effect, there are but few inventions to equal it. We allude to the *marble-glass*, or *silexalated marble* of Mr. G. Shove, 488, New Oxford Street. The inventor can produce the most diversified graining, as though it were the natural production of the mine ; indeed, the richness and variety of the veins greatly exceed those of nature, while its polished surface reflects the colours beyond anything that can be produced from the stone, whatever art may be bestowed upon it. For decorative purposes it must be highly useful, whether used internally or externally ; its hardness,

pedestals, at the head of the centre table, in ruby glass, the inner surfaces being variegated by the application of the silvering process, which throws out the colour of the glass with extraordinary brilliancy. There were also three superb drinking cups, one for his Royal Highness Prince Albert, and one each for the Lord Mayors of London and York. The first was in ruby glass, portions of the stem and base internally chequered with silver, and on the sides bearing beautiful white medallions (sunken) of Her Majesty and the Prince Consort, and the royal arms of England. The other two cups were of the same size and shape, but instead of being ruby and silver, the colours are emerald and silver ; and on the sides are the private arms of each of the right hon. recipients, together with the usual heraldic emblazonments of the cities of London and York respectively. These vessels were finished in the most elaborate manner ; and in beauty of form, novelty, and splendour of effect, and suitability of purpose, fully justify M. Soyer's discrimination in selecting them for presentation on the occasion. Upon an examination of the cups alluded to in the above description of the dinner at York, we feel that we have scarcely done justice to the merits of the invention.

its durability, and its easily-cleaned surface, rendering it an article of great utility, and of comparatively easy appliance.

Again, invention seems to riot in its appliances of glass, for we have glass chimney-pieces, glass tombstones, glass spoons, and even glass water-closets. The beauty and hardness of the material, and its imperviousness to atmospheric influence, making it capable of almost universal utility. We are indebted to Mr. W. Tooth, Bermondsey Street, Southwark, for the application of glass to water-closets, which prevents all noxious vapours from rising, as they are made steam-tight; and the chimney-pieces, by the same ingenious individual, are the most brilliant and tasteful inventions for domestic ornament that can possibly be conceived. The gold-coating, or silver, on the back, imparts to the chimney-piece a peculiar and brilliant effect, tasteful, too, in the highest degree. And the tombstones, and other *mausolei*, of the same material, either transparent or opaque, just as the fancy may choose, when indulging in such grave matters! To live in glass-houses has hitherto, according to the old "saw," been considered dangerous; yet the inventive faculty of the age is about consigning the dead to them. Be it so; a glass tombstone or tablet, with its golden letters inserted, descriptive of its sub-jacent owner, must present to the eye, in the newly contemplated cemeteries especially, a more pleasing object than the old stones, with their black-and-white, magpie aspect. Nor ought we to rank Mr. C. Jenner, Barge Yard Chambers, Bucklersbury, the least amongst the useful inventors of the age for to him, we believe, must be attributed the idea of first applying glass to graveyards.

Again, there is Mr. Kidd's (Poland Street) discovery of "embroidering" glass, which imparts so beautiful an embellishment to flat surfaces of that material. The character of the invention renders it susceptible of varied application. The process consists first, in cutting some design upon the glass, and, secondly, in silvering it over with a metallic sur-



face, which gives the design a strongly-defined and frost-like relief, although perfectly smooth to the touch, as the work is introduced on the underside of the glass. When viewed from the front, the designs have the appearance of the purest silver, raised from the surface of the glass, as though they had been let in the material; nor can they be tarnished, but will endure, in all their freshness and beauty, as long as the material upon which they are impressed. This beautiful invention will give a strong stimulus to the decorative art, especially where elegance, purity of taste, and neatness of execution, are the leading desiderata.

It is thus that genius conducts nations by a thousand different ways to a better existence, by putting every day within the reach of all a multitude of new and unexpected enjoyments and uses.

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#### POTTERY AND PORCELAIN.

In the manufacture of pottery we have no competitors, if we look to beauty, economy, and utility combined. All the continental states are far behind us in this branch of industry, and have little chance, so long as they are comparatively deficient in the raw materials and the capital, of competing with us.

“The positive imperfection,” says M. Stephane Flachet, in his interesting Report, “of our pottery, discloses a gap in our industry which ought to be filled up, a vice in our tariff which must be removed. France is deficient in the raw material for a good and cheap manufacture of pottery; she pays far too much for fuel, as compared to England. The latter country combines all the essentials for the manufacture of cheap and good pottery. The introduction of English pottery would only inflict an injury (?) upon those establishments whose productions are a shame to our industry, and a

plague to the consumer. The merchants of Bordeaux, Lyons, and Havre, who petitioned the Chamber in 1834, and since, to effect an alteration in our tariff, express themselves thus :

“ ‘ We cannot too frequently call your attention to our pottery and china-ware. A duty of eleven francs to sixteen francs is imposed upon the foreign common pottery when imported ; the fine qualities are altogether prohibited. These articles, were they subject to a moderate duty, would afford us a large exchange with the English market, and from their bulk, give considerable employment to our shipping. We implore you to give them free admission, not only as articles of commerce, but as supplying domestic articles of the first necessity, of which thousands of families in France are now deprived. In fact, a dozen common plates in England is worth about twelve sous (sixty centimes), while in France the price varies from two francs fifty centimes to three francs.’ ‘ England,’ says M. de Saint-Cinq, the proprietor of Creil, and who has a large establishment at Montereau, both appropriated to the manufacture of potteries, &c., ‘ can deliver at Rouen its plates at forty sous ; I can deliver mine at forty-eight sous ; therefore I have a right to a protecting duty of twenty per cent. At Bordeaux, I would sustain a competition with the English with a duty of twenty-five per cent.’ ”

There is also another point of still greater importance than cheapness, in relation to articles of pottery, which is deserving of notice, as it throws an indirect, yet powerful light upon the comparatively inferior condition of the French manufacturers, engaged in this branch of industry.

“ If we recall,” says M. Flachat, “ the observations of M. Brongniart, a most competent authority upon the unhealthiness of the common pottery of France, it is simply to strengthen the prayer of the Bordeaux merchants, and give it the weight to which it is entitled. *The unhealthiness of the pottery in common use in the country is notorious.* There are certain

qualities so badly made, that the slightest acid employed for domestic purposes, is sufficient to decompose the glaze, containing a certain portion of lead, which immediately mixes with the food in the process of cooking. None of it can resist the contact of sulphuric gas; and the greater portion, if exposed to the air a few days, will become covered with a surface, which indicates that the oxygen has combined with the lead in the glaze, and that the latter has undergone decomposition. The glaze is too little burnt, being composed principally of lead, which requires but slight fusibility; hence, the atmosphere soon affects it. It is on the score of economy that lead is used, so that the article may be produced cheaply."

Nor has France made any great progress in this branch of industry since the above remarks were written; therefore, the relative difference between her and England is about the same.

In the article of porcelain, France has long enjoyed a deserved reputation, and, doubtless, will sustain that reputation at the forthcoming *Exposition*. The quality of the material which she uses, and has acquired the art of manipulating so exquisitely; the beauty of her designs, and the fine taste of her paintings, both of which she imparts to this branch of skilled industry, have given her hitherto a marked pre-eminence in the European markets.

"France," says M. Flachet, "has a fundamental advantage in the manufacture of porcelain—the excellence of the raw material. The *kaolin*, of Saint-Yrieux, near Limoges is the purest in quality ever known; and this cause, added to our taste in the arts, explains the growing progress of this beautiful industry among us. The hard porcelain-paste in the manufactures of Paris and Limousin, is composed of four parts of unwashed *kaolin*, and one of *felspar*. The paste, called the *service*, in the Sèvres manufacture, contains sixty-four of washed *kaolin*, six of Bougival *chalk*, ten of



pure *sand*, from Aumont, near Chantilly, and twenty of sand, from the washing of *kaolin*, in one hundred parts. The washing of kaolin, practised at Sèvres, completely separates the sand from it, and imparts to the paste a more argillaceous texture than that of Paris, which, according to Brongniart, renders it more susceptible of undulations in the burning, and more capable of being shaped on a large scale. Here then is a branch of industry truly French, in every part of which we are superior to our neighbours. Excellent raw material, skilled hand-labour, and priority in the art of designing. Again, while the manufacture of fine pottery has been nearly stationary, for some years past, at about two millions of francs per annum, our productions of porcelain, during the same period, have risen to about eleven millions in value. And our exports, also, have experienced a corresponding increase; for while our pottery of every kind has barely reached seven hundred thousand francs annually, our export of porcelain has exceeded four millions of francs."

Notwithstanding these great advantages, the manufacture of porcelain is confined principally to the high-priced and luxuriant productions; it applies itself but rarely to the wants of the many, whose tastes and means are of too humble and limited a nature, in France, to be gratified by such costly objects.

"The manufacturers of porcelain," says M. Flachet, "have neglected to exhibit a class of objects, that would come within the range of the ordinary purchaser, and seem to think that the public would take little interest in such productions. They are mistaken. Whenever productions for ordinary use exhibit any improvement in their manufacture, the public not only admire, but eagerly purchase them; and it would be the same with porcelain were any sensible amelioration to take place in its price. Surely here is a motive sufficient to imitate the beautiful pottery of

England, so universally diffused in that country ; but here we are met by another objection, and rather an awkward one—namely, that our largest manufactures of porcelain are deficient in the mechanical means for the preparation of the materials for manufacturing cheaply. Our excellence in this branch of industry is mainly dependent upon our skilled labour, the productions of which can never experience a very extended range of sale.”

And as regards the patronage of art by the State, which is frequently cited as a cause why France has been so successful in her application of it to industrial pursuits, there are several opinions entertained, even in France, on that head.

The royal manufacture of Sèvres, like others of its kind, does not appear to us injurious to trade, simply on account of its coming into collision with private enterprise in luxuriant productions, but in giving a wrong direction to the general interests of industry, by artificially stimulating its productive power. A healthy state of industry can only exist, when it depends upon individual enterprise, which is invariably guided by the instincts of private interest and the spirit of economy and amelioration in all its movements. Hence, the most important improvements in the manufacture of porcelain, have not emanated from Sèvres ; and it is quite certain that economy, in the process of manufacturing, the only means of giving an extended development to this branch of industry, is the last lesson that may be expected from that quarter. The money, therefore, expended at Sèvres appears to us to be injudiciously employed, because it serves to maintain a species of industry which, in the ordinary state of things, is rather an evil than a good.

“It must be allowed, however,” observes M. Flachet, “that the manufacture of Sèvres is animated with the laudable desire of extending its knowledge and skill for the benefit of industry ; but experience proves that its services are

but of a very secondary nature, and that the money absorbed annually in that temple-fabric of luxury, might be more usefully employed in schools of design, of chemistry, of mineralogy, of mechanics, and of metallurgy."

We fully agree with M. Flachet. True excellence, that is excellence of a healthy and enduring nature, rather springs from *below*, than from *above*; we mean industrial excellence, whatever may be its nature, which generally emanates from the moral and intellectual feelings of the mass of the community, and seldom partakes of an enduring character when pampered and petted by artificial means.

The manufacture of porcelain in this country, on the contrary, is characterized more by its simple beauty and its extensive utility, than by the costliness and refined luxury of its productions. This branch of industry, like most others in England, is based upon sound and healthy principles; it is creeping up the pyramid of perfection by its own innate excellence, and, as it rises towards the apex, still keeps a firm hold upon the lower strata, in order that it may sustain itself safely and soundly in its upward movements, for, after all, there is the true seat of its vitality. France, if we may be allowed the figure, has inverted the pyramid in almost all her industrial pursuits. She produces the richest silks, the finest printed cottons, the most costly porcelains, and, in a few instances, the most minute and skilful machinery; but these productions, which are limited in quantity, are for the comparatively luxuriant few, while for the many, after all the most useful class of customers, and without supplying which no industry can be long maintained in a healthy state, she has inferior, low-priced silks, dear cottons, villanous crockery-ware, and abominable cutlery.

In order to prove the truth of our observations, it is only necessary to visit the *dépôts* of our several manufacturers in London; there you will find the closest approximation to the perfection of industry, namely—*beauty of appearance with*



*utility of purpose.* It is in this combination that we are far a-head of the foreigner ; and, above all, in *the truthfulness of our work.*\* Let any one, whose mind is even ordinarily attuned to the uses of the elegant and useful objects in life, take a stroll over Messrs. Copeland's establishment in Bond Street, where may be found a collection of articles in porcelain, whose elegance of form, whose exquisite colouring and design, is certainly unequalled in this or any other country. The uses, too, to which porcelain is now applied, has opened up a wide field for the enterprising skill and ingenuity of its proprietor. In the decorative branch this fine material has, in many instances, superseded marble, and far excels it in point of beauty, variety, and economy. We allude to the porcelain chimney-pieces which are applied in so many ways, in the arrangement of the fire-place in rooms.

Again, let your eye wander over that well-ordered arrangement of domestic articles, of every conceivable shape and use, and there you will find the highest results of mechanical excellence, of nicely manipulated material, and of exquisite skill, not only as regards the quality of the work, but also the purposes for which it has been designed. There is little to fear, in this branch of industry, from the competition of the foreigner ; indeed, we excel him, far excel him, up to this point of comparison. But there is one art which we have made our own, in relation to Messrs. Copeland's industry—*Porcelain Statuary.* The cold, blue-white, and cheerless bisquet-work will bear no comparison with it, either in feeling, beauty, or expression. The porcelain-statuary will do more, with its warm, genial, Parian-like flesh, to extend a

\* Nor are we indebted to foreign art for the beauty and delicacy of designs in porcelain objects. Here again is manifested the growing improvement of art in England, as applied to industrial pursuits, especially in the reproduction of the Etrurian style of art, by Mr. Battam, who seems to have endowed it with a new spirit.

true and beautiful knowledge of the arts than any invention of modern times. The finest productions of statuary can now be disseminated at a moderate price, and in a material which is unequalled for its almost thinking and speaking appearance. This *Parian-Porcelain Statuary* is English invention.

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## TYPOGRAPHY, LITHOGRAPHY, AND STEREOTYPE.

The typographic art of this country is superior to that of France, or of any continental nation. Type-founding has rapidly improved since the time when William Caslon formed an Arabic alphabet for printing the New Testament in this country ; before that period English printers imported their type from Holland. It was in 1720 that Caslon commenced type-founding in England, and some of his descendants, we believe, are still pursuing the art—doubtless with the same energy and intelligence as their ancestor displayed.

The English type is made of better metal—the admixture of antimony with the lead and arsenic being more liberal—than any met with on the continent. By this means the letters are harder, and less liable to bend or wear away at the side or foot of the pages, which is highly prized by the English printer, therefore the letter-cutters pay particular attention to the “lining” of their alphabet—making all the small and large letters of an equal height—so that a straight line drawn on the summit or base of the letters will touch all of them without a single one being found above the upper or under the lower line. This precision in forming the English type is a beauty scarcely observed by the public ; but the experienced eye of a bibliographic connoisseur can detect the absence of it in the height or shape of letters, in most foreign works. Hence type is much dearer in England than on the continent, because it is made of better metal, and the

engraving is executed with greater nicety. In England the type-founders are few, and comparatively rich, while on the continent but very few are in that condition; therefore the former find it their interest not to furnish printers with soft metal and irregular cut letters, while the latter cannot be expected, from the low price they charge, to produce anything but the commonest kind of work.

Nearly all the improvements in typography have been devised and perfected in this country, although the art has never received the least support of a public nature, like the *Imprimerie Nationale* of our neighbours, which annually receives a large amount from the public purse. Everything in this country is effected by private enterprise; the State prudently abstaining from all interference, except that of a purely fiscal nature. This reminds us of an anecdote of Canova, when on a visit to this country, soon after the peace. Having viewed the lion of the day—Waterloo Bridge—and being told that it was built by private enterprise, he earnestly desired his *cicerone* to show him something that the State had done, in the way of public monuments, when the latter immediately directed him to the Pagoda Bridge, then standing in St. James's Park. "Good heavens!" exclaimed the astonished artist, "is this a sample of State patronage? Then leave the encouragement of art to private enterprise."

We repeat, that the most important improvements in the art of typography have been effected in England; nor need we go far or wide for an illustration of this interesting fact. The *Times* paper, for instance, will immediately supply one. The progressive stages of that journal are marked by a series of inventions, which have no parallel, even in these inventive days. The new machine, which throws off so many thousands of copies daily, belonging to the *Times*, was brought to its present perfect state by the unwearied exertions of the late proprietor of that journal, whose perseverance, judgment, and capital, overcame every obstacle



that presented itself, and administered a rebuke to those who may be termed the *Impossibilities* of the age. We have alluded to the singular abilities of Mr. Walter elsewhere; a slight sketch of the labour he left behind him, will not only illustrate the art of typography in this country, but also furnish us with the elements by which we may estimate, in some measure, the relative characteristics of France and England.

After a succession of abortive attempts made by the best engineers of the day, both foreign and English, and an immense outlay of money, Mr. Walter at length succeeded in accomplishing his designs. The *Times* was the only paper printed by a machine for nearly two years. This was in 1812 and 1813; but its impressions were faulty, for the printer's balls, then in use, not only complicated and deranged the machinery, but also checked its speed. Then came rollers as a substitute, which were covered with skin; but these left on the letters the superfluous ink contained in the juncture or seam of the skin, in long dark streaks across the page, which were technically termed "friars." Next succeeded composition rollers. Several claimants disputed the honour of this simple invention; it belongs, we believe, to an obscure, but dissipated pressman, whose memory should be recorded amongst printers, were it only for his having been instrumental in removing the noxious odours which infected their premises, during the preparation of the skins. Whatever the inventor's name might be, he was a native of this country; so also was the late Alderman Magnay (if we may be allowed a moment's digression) who, from precisely the same cause which prompted the *Times'* proprietor to seek security in machinery—the *irregularity of workmen*—incurred enormous expense in the production of the first paper-machine. It was the energy and inventive faculties of such men as Walter and Magnay that elaborated the "broad sheet," and made *the Press the pulse of the*

*world.* Let us suppose a Parliamentary debate in both Houses, terminating late in the morning. Thirty-seven thousand copies of the *Times* are wanted, many of them early, for the morning trains, to be distributed east, west, north, and south. To set up the immense mass of type, before printing the paper, is a gigantic task; to print the number of impressions required was, until the utmost inventive faculties were called into requisition, a still more gigantic task. By means of the last invention, however, eight thousand copies per hour of the *Times* are perfected, which is double the number of copies printed by any other press, either in Europe\* or in America. Indeed, this last invention is no less surprising than the printing-machine itself, which owes its origin to the same journal. Imagine some hundreds of thousands of separate types or letters, made of metal, each about an inch in length, with a letter at the upper end; and that nearly a quarter of a million of these morsels of metal are encircled round an upright cylinder, not horizontally, and on a flat surface, as they were placed before this invention. Again, a simple contrivance suffices to maintain this enormous quantity of letters in their respective places; the outer edge, or, as it is technically termed "the face of the letter," forming one compact solid circle of a larger diameter than that of the cylinder, by the shape of the rules separating the columns, and the metal supporting them outside; the two latter being cut in the shape of a wedge, and terminating at "the foot," in an acute angular point, while the top of the rules forms the hypotenuse of the angle. Thus a gradual width is given from the bottom of the letters to their top, over which the

\* The machinery in use for printing the *Débats* and *La Presse* is insignificant when compared to that of the *Times*, though the proprietors of *La Presse* are making great efforts, through the aid of English artisans, to accomplish a similarly gigantic power. Most of the Paris papers are printed either by English machinery, or by machinery made after English models.

printing-ink and paper pass alternately, when the latter issues from the machine in a complete form.

Practical printers are astonished at this contrivance, as indeed all persons, having the least knowledge of the art, must naturally be ; but there is an immense advantage derived from it—the saving of time—which enables thirty-six thousand individuals to read, almost at the same hour, the news of the world ; whereas only half that number could have been accommodated by the most efficient means previously employed.

Nor is the superiority of England in printing confined to the newspaper press, but relates to almost every other branch of the art.

M. Flachet, describing the state of printing in Paris, remarks :

“The progressive improvement of printing is mainly to be attributed to the employment of mechanical presses. There are at least fifty employed in Paris, which are equal to about five hundred of the common presses ; and this increase has taken place without diminishing in the slightest degree, the number of printers or of hand-labour. The greater portion of these presses have been supplied by English mechanicians, particularly by M. Cowper, of London ; the remainder were made by M. Selligeu ; but the palm of superiority must be accorded to the English.”

Further on the same intelligent writer remarks, in relation to another branch of the art :

“In another branch the English maintain a marked superiority over us—engraving on metal and on wood. It is well known that they have long excelled us in cheap engravings ; the *Magasin Pittoresque* was a truly English importation ; most of the engravings of that and similar publications were purchased from the *Penny* and *Saturday Magazines*. Several wood-engravers from England have



established themselves at Paris, and have diffused a knowledge of their art among us."

The art of printing has, from the earliest time, been best executed in those establishments where the steadiest and most experienced workmen are secured by good wages. Order is essential in this business; so is the greatest care and a certain amount of instruction. From the non-observance of these important facts—notorious to all connected with the press—printing is greatly on the decline in Paris. Since ready communication between that capital and the adjacent towns has been supplied by means of railroads, the country offices have obtained, at a reduced price, the great bulk of the metropolitan booksellers' works; therefore the Parisian establishments are doing next to nothing in what is termed "the book trade." Swarms of apprentices are taken by the country masters, the larger portion of whom, when out of their time, cannot possibly procure employment; and in some offices women are employed in considerable numbers, working like men as compositors, and articleed for years to receive only half their usual earnings. From forty to fifty of these women are employed in various offices within a circle of ten leagues round Paris: but, whether they will benefit themselves or their employers, by this unfeminine occupation, may be seriously questioned. In a pursuit demanding the greatest care, and the most perfect order, it must be expected that women and apprentices, however picked and culled, must exhibit work blurred with deformities, and full of lurking errors, when sent hastily to press—such as inequality in the length of pages, whites before and after chapters, too little or too great a space between the words in some of the lines, &c.

And whence has arisen this declining state of printing among our ingenious neighbours? Simply *from the irre-*

*gularities of the workmen*, either striking on their own account, or energetically assisting the general outbreaks which have so fearfully decimated Paris during the last fifteen years. Capital and industry cannot endure such rude shocks; they naturally take their flight to more peaceful, and therefore more profitable, regions.

In typography, then, we have no fear of France excelling us, not even with her finest Didot\* samples of type, which are got up principally for the *Exposition*, and with but slight reference to general use, for the comparatively limited means of the French printers must necessarily preclude them from using so expensive a material.

That fancy or *lithographic printing* should excel in France, while its sister branch, typography, should be in the ascendant in England, is dependent upon several causes. First, the instruction of the respective nations has materially influenced its condition, both here and abroad. The French have devoted more attention to ornamental art than we have, and for reasons of a purely political nature, which have been already pointed out. Lithography made great progress in France during the last war, whilst in England it was comparatively in its infancy; this progress must be attributed to the excellent instruction which was extended to the French artisans by the schools of design, established throughout France. Gratuitous instruction in drawing has long been liberally given in Paris, and in all the great centres of industry; even the young delinquents in Paris are encouraged to colour porcelains, by the allowance of part of their earnings. At the prison, for instance, for juvenile offenders, Rue de la Roquette, a professor of painting attends seven hours a day; with these advantages, therefore, the humbler classes

\* On a view of the extensive foundry of Messrs. Figgins, of West Smithfield, the contrast of English and foreign type will at once manifest itself. The beauty, variety, and proved durability of the former is exemplified by comparing the printed works of each respective country.

cannot fail to produce artists capable of executing tolerable designs for most purposes, particularly as they are stimulated by the pressure of daily want.

There is, moreover, a large body of artists whose works are refused at the National Exhibition, and who have little chance of obtaining a livelihood by their professional pursuits, therefore offer their services to lithographers, manufacturers of fancy articles, tailors, milliners, &c., in the hope of turning a penny even in these humble avenues of art. And so great is the competition among those needy practitioners, that when a novel design is to be executed, a rough sketch, accompanied with instructions, is given to half a score of them, with the express proviso that none but the drawing chosen out of the lot shall be entitled to the stipulated reward. By this supply of skilled labour exceeding the demand, the capitalist possesses means, known in few cities except Paris, for purchasing a very superior model at a very low price. Need we wonder, then, that the French *modiste* and *coupeur*, with such a phalanx of art, should dictate the laws of fashion to the whole civilized world ?

The lithographic press of Paris supplies an immense quantity of gold, silver, and coloured borders, corners and centres, for boxes of almost every description appertaining to the toilet-table of the fair sex. On paper, on glass, and on every material connected with the delicacies, and even the luxuries of life, the best pictures and devices are imprinted by the lithographer's art. The French, certainly, have attained an excellence in this branch of industry, far beyond ourselves, and also beyond all Europe, although the materials used by them are cheaper in England than in France. It is the excellence of her art that has obtained for her so marked a supremacy in lithography ; and to such an extent is it practised in Paris, that England alone imports forty thousand pounds' worth of lithographic articles annually, according to the authority of M. Dupin.



*Stereotype* was invented by Lord Stanhope, though the French printers have set up a claim in favour of the late Mr. Herhan (a German), formerly printer in the Passage Lemoine, Rue St. Denis, Paris. The latter certainly invented *a system* for stereotyping, which consisted in composing the pages with hollow-faced, instead of projecting types, the result of which must have been a continual change of the materials employed. But this was not the only expense; the process was altogether abandoned on account of its immense cost. *The method*, therefore, which has always been employed by the stereotypers of all countries, remains very nearly the same as it was when presented to society by Lord Stanhope. The art was imported into France by James Ferguson, who had assisted his Lordship for many years in his amateur office; and the first French *stéréotypie* was established in the office of Mr. J. Smith, an English printer, formerly residing in the Rue Montmorency, and afterwards in the Rue Fontaine-au-Roi, where the office still exists, under the direction of his widow and sons.

Thus, if in fancy or decorative printing our neighbours are superior in practice, invention, and that good taste which can be mastered only by experience, we have a just claim to inventions of the greatest practical utility in that branch of the art most generally required.\*

\* The most recent invention in relation to stereotype-printing, and which must materially aid in the extension and cheapening of knowledge, is the *Papier-Maché* matrix of Benjamin Manning, which will enable a workman to do as much in an hour, as by the ordinary process he could effect in five or six hours.

## PIANOFORTES.

Perhaps there is no branch of industrial art that has experienced more changes, in a given period of time, than the manufacture of pianofortes. Indeed, from the first crude idea, to the ultimate realization of any grand invention, it must necessarily pass through many phases, and require many and successive improvements. Experience alone enables us, in carrying it out and reducing it to its simplest form, to detect many errors, and correct many misconceptions. At first, we only see as in a glass darkly; we grope our way; we learn how to avoid obstacles; and, as a stronger light gradually breaks upon our path, we begin to estimate imaginary difficulties at their proper weight. Amédée Schröeter, the organist of Nordhausen, when he first conceived the idea of an instrument which he named a *Pianoforte*, could never have dreamed of the rich harmony of tone, and the wonderfully diversified power which an instrument from the hands of a Broadwood or Erard can produce at the present day. From the first application of the hammer to strike the cords of a keyed instrument, down to the last improvement of a 'grand,' 'a semi-grand,' or a 'horizontal-grand,' with their exquisite mechanical arrangement, there must have been many and almost untold gradations—ideas hammered on the anvil of the brain until they assumed a telling and effective form—through which the ingenuity of the head must have dimly and slowly directed the cunning of the hand. And it is so in every branch of science—in every walk of art, for Providence has wisely ordained that we shall not be blinded by excessive brightness; but that, in order to preserve and strengthen our vision, light shall dawn upon us by degrees, and that, before we arrive at perfection, we shall do something ourselves towards its achievement. Pianos, therefore, like all other human inven-

tions, have but slowly advanced to their present perfection, in order that they should be in unison with the power and ingenuity of those who have called them into requisition.

In the manufacture of musical instruments, in which a large amount of capital and skilled-labour are employed, we find ourselves, in some points, inferior to the foreigner, in others, much superior. As regards quality, in the general run of our pianos, we maintain the superiority, excelling the foreign manufacturer in touch and tone, although he sometimes excels us in point of finish; therefore English pianos are known throughout the world, as our exports of this instrument greatly surpass that of all the continental nations.

It would be beside our purpose to enlarge upon the various improvements effected in this country, even within the last few years, in the manufacture of pianos; nevertheless, we may be permitted to notice the greatest improvements—the highest degree of excellence yet attained—in this department of industry. The most exquisite finish, the nicest point of musical intonation, combined with its delicate, yet powerful *repetition-touch*, is displayed in the horizontal-grand of Erard; nor could this excellence have been attained by the mere impulse of commercial gain, but must have emanated from a mind devotedly attached to a particular industry, and not wholly influenced by the profits arising from it. Musical devotees will readily comprehend the excellence to which we specially allude; it is seldom attained, except by those who have a dash of the enthusiastic in their composition. A simple reference to the improvement effected by Erard in the manufacture of pianos is quite sufficient for our purpose; a minute detail is not in accordance with the plan and purport of this brief pamphlet; nor do we wish for a moment to disparage the improvements effected by others in this interesting branch of industry, many of which are of acknowledged excellence, and have given a great impulse to the healthy exercise of capital, and the useful employment of



labour; but there is a peculiar reason why we should cite the name, and the skilled excellence of Erard, in relation to the forthcoming *Exposition*—namely, his uniting the intelligence and enterprise of a foreign, with that of an English, manufacturer. In this double capacity he has been enabled to transfer the general excellence of England to the manufacture of pianos in France, and, reciprocally, to import the nice finish of France into the English manufacture. As regards the nominal price of labour, there is an evident advantage in favour of France, though its practical results are not quite so manifest. The piano-manufacturer in this country is paying full fifteen per cent more for his work, when measured by the day, than his competitor is paying in France; but it does not follow that labour is cheaper there than here. We have an important element in our favour, which should never be lost sight of in calculations of this nature—namely, the dogged endurance and energetic hand-skill of our working-men.

There is also another invention of the day which is deserving of notice, not only on the ground of its singular novelty, but from the great and varied uses to which it may be applied. Music, and its charming exponent, the human voice, are cultivated to a much greater extent amongst almost all classes of society now than formerly; therefore an instrument which diminishes the difficulties of the one, and accommodates itself to the deficiencies of the other, must be considered, by musical devotees especially, as a great desideratum. By an easy and simple contrivance a singer is enabled, with the *Transposing Piano* of Messrs. Towns and Packer, to transpose a piece of music, by semitonic progression, two whole tones higher or lower than the pitch of the key in which it is composed, so that any vocal composition may be brought within the natural compass of the voice. Nor is the tone or touch of the instrument in the least affected by the transposing movement, a difficulty hitherto thought insurmountable.

And not only will this invention adapt musical compositions to the peculiar compass of the human voice in all its varieties, which must have the effect of diffusing musical enjoyment, but it will simplify the acquisition of music, and tend to make it intelligible and attractive to those whose organ is of comparatively limited power. For instance, a child who can play or sing the scale of C only on an ordinary piano-forte, can, by means of this invention, directly adapt its power to any other scale, which must materially facilitate its progress in musical knowledge.

In fine, the advantages of this instrument will naturally suggest themselves to musical amateurs and professors; to the first as capable of being *pitched* in accompaniments to wind instruments, which, under certain conditions, no other piano is capable of; to the second it will be as serviceable as logarithms are to the mathematician, by saving him an immensity of time and trouble, both of which are expended in the simple act of transposing musical compositions.

The productions of Broadwood, Collard, Kirkman, &c., are so well known, and have each their respective excellence, that any remark upon them would appear almost superfluous; nor should we even mention them were it not to strengthen the common conviction that we have no justifiable reason to anticipate defeat in the industrial struggle of '51, so far as regards the manufacture of pianofortes.

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#### CABINET-WORK.

In this branch of industry there will, perhaps, be a greater variety of productions than in many others, as several of the continental states have their peculiar kinds of excellence in cabinet-making, and will, doubtless, strain every effort to appear in their highest perfection at the *Exposition of '51*.

France has her fanciful forms, her showy, and, in some instances, her extremely elegant objects; so has Germany, especially in carved wood; and Belgium also, who frequently combines the peculiar excellence of both. Nor will England be far in arrear in any of these respects, while in others of equal importance she will be proportionably in advance of her contemporaries. In the goodness and truthfulness of our work, in the quality of the material, and in the general convenience and usefulness of the objects manufactured, we shall scarcely have a competitor; but in the ornamental, where a fantastic taste may be recognised, or a peculiar purpose must be effected, the foreigner most likely will have the advantage of us. Yet even in these respects—in carving, in fanciful designing, and in minute execution—we have made considerable progress during the last few years.

But there is one advantage of great importance which we possess over all our foreign competitors—namely, the command over the raw material, which we have not failed to turn to good account.

“One important fact,” says M. Flachet, speaking of France and her Exposition of articles of cabinet-work, “must be noticed—the great inferiority of our indigenous woods. We see this in many objects of furniture, while mahogany and other tropical woods, which are more largely used this year than we ever before observed, clearly proves the fact. If we except the walnut-tree, with its beautiful grains, our wood is deficient in that vivacity of colours, that variety of texture, that richness of fibre, which the woods of a hot climate present; and time, instead of improving its condition, only gives it a dull, cold, grey, and leaden appearance. Moreover, exotic woods improve by keeping; ours, on the contrary, lose their beauty. Here, then, we have a branch of industry in which the foreigner is decidedly superior to us—in the command of the raw material; and, being compelled by the inferiority of our own produce to import three millions



of kilos. of exotic wood to supply our industry, the question naturally arises—can we do so upon the same terms as the foreigner? . . . . . A comparison, therefore, may be made between the relative extent and importance of the English and French cabinet-work, by estimating the respective imports of mahogany into the two countries. In a single commercial establishment—the West India Docks—we have seen fifteen thousand logs of mahogany at the same time, which is about double the importation of France in a single year. These logs generally are much larger in dimension than those which are transported to Paris by the navigation of the Seine, some of them measuring even 2m. 50c. the diameter. In England, moreover, they have powerful machinery for disembarking the mahogany and placing it under shelter; by this means they obtain two advantages of which we are deficient—first, the wood is not exposed to the atmosphere for a long period, which materially deteriorates its surface and produces a loss; and, secondly, there is a great economy in the conveyance, which is a considerable per-centage upon the consumption.”

Nor ought we to omit noticing another advantage which we possess over our continental competitors, and especially France—namely, the superiority of our locks and hinges, which imparts a value to our cabinet-work, and causes it to be preferred by the foreigner, whenever a choice presents itself.

There is likewise a peculiarity in the relative condition of French and English cabinet-workers, which is deserving of notice, as it materially affects the interests of both. We allude to the small cabinet-makers in Paris, whose number is disproportionately large, in relation to the whole body employed in that branch of industry. Out of four thousand cabinet-workers in Paris, there are upwards of fifteen hundred working on their own account, with the help, occasionally, of a single apprentice or workman, who, too, frequently follows

the same example. These petty manufacturers, as a matter of course, buy their materials at the greatest disadvantage, and produce their articles of an inferior quality, two circumstances which lead to the inundation of the market, with dear (though nominally cheap), ill-made, and showy objects of furniture, most of which are knocked up to turn the immediate penny. This petty segregation of labour has, in some measure, its origin in political causes, and may be traced to that love of pseudo-independence, which is the blind day-dream of so large a portion of the French working classes. The latter foolishly imagine that the capitalist, as they term the master-employer, is their enemy; that he is always devising plans to rob them of their hard earnings; that he is, and must naturally be, their antagonist. This fatal delusion has been widely spread throughout the mind of the working classes during the last fifteen or twenty years, and has given rise to many of those frightful outbreaks which have invariably terminated in their especial injury and discomfiture. But let us hear what M. Flachet says on the effects of this fatal delusion :

“The larger portion of these petty makers,” he observes, “are ill-provided with tools, and purchase their materials in detail; or, in other terms, pay dearly for everything they use. They make a piece of furniture, then run with it to a cheap dealer, who generally beats down the price, and gets it as his own valuation. It is quite common to see these workmen trotting about the Faubourg St. Antoine, and elsewhere, with their weekly work, first to one shop, then to another, in order to dispose of it to the best advantage, and if they fail in meeting with a purchaser, there is no alternative but the Mont-de-Piété. What progress, therefore, can our working-men make under such a system ?”\*

\* Since the last revolution in France, workmen of one kind or other, have settled in London in great numbers, where they find, in several instances, profitable employment. Artists, flower-makers, decorators, lithographers, and

The same evil obtains in this country, but only to a limited extent, when compared to France. The workman who pursues such an unprofitable labour here, is either a drunkard, or a lazy and worthless fellow, whom no master will employ at regular work ; while, on the contrary, the French workmen are led astray by a political delusion rather than by bad habits, although the latter are by no means unfrequent amongst them.

The truthfulness of English work, which more or less characterizes our several branches of industry, is particularly manifested in cabinet-work ; and not only the truthfulness of execution, but the beauty of design, and the excellent quality of the materials, are equally predominant, when compared with foreign productions. In order to manufacture first-class furniture, it is necessary to use the best quality of wood, which can only be secured by purchasing largely, and allowing sufficient time for its becoming thoroughly seasoned. There is one thing especially to be observed by first-rate cabinet-makers—namely, to eschew all steaming and other artificial processes, to produce a premature and supposed natural effect in the wood, which are sure to tell their tale in the long run. And here again we are brought to the main consideration in all industrial pursuits—the command of capital and the raw material, which we pre-eminently possess over the foreigner, and which enables us to produce work, which is commonly said

others skilled in what is called “Parisian industry,” are diffusing their knowledge amongst us, and improving our taste in some respects. There is a considerable body of the petty cabinet-makers working together in Rathbone Place, nominally under a *chef*, but, virtually, we believe the result of their labour is equally divided. The men knock up cheap furniture, in the knicknack style of French work, and then dispose of it piece-meal to the large dealers in our great thoroughfares. The latter circumstance, in a great measure, may be attributed to the cheap veneers of France, which enter so largely into the manufacture of furniture ; and, strange to say, while the veneering skill of our neighbours can obtain twenty-two to the inch, we can only cut about fourteen veneers, taking the maximum skill of each.



to improve in quality as it increases in age, while that of the foreigner is subject to the reverse condition.

Among the first, perhaps, of our cabinet-makers, must be ranked the Messrs. Gillows, whose furniture, more or less, is known in every mansion in the three kingdoms. For beauty and durability it cannot be surpassed, and in these important respects, it has no competitor on the continent. But there is one house\* which has acquired a pre-eminence in cabinet-work, not only as regards the quality, the style, and the general excellence of its work, but, also, from the adaptation of its productions to the varied interiors, which the improvements in architecture and design have recently produced. Nor ought we to pass over the exquisitely carved imitation of antique work and rich furniture of Mr. Hanson, John Street, Oxford Street, who has advanced the former branches of skilled labour to a point, in many respects equal to the best German and Belgian carvings, and in some superior to them.

Again, as regards wood-carving, the productions of our most ingenious workmen are entitled to higher praise than anything the continent has produced for years past. For instance, the Royal Cradle, carved by Mr. W. Rogers, is fully equal to the finest specimens of the sixteenth century, when the art of carving wood was, perhaps, in its most palmy condition. Nor has this ingenious artist confined himself to the mere imitation of an isolated and set style of art, but has studied the several peculiarities of wood-carving, from the earliest epoch to the present time; and having culled the treasures of each period of excellence, has elevated the art to a high state of perfection.

If, then our artisans would improve the "cunning" of their hands by the intelligence of their heads, in unison with

\* Messrs. Miles and Edwards, of Oxford Street. We cannot justifiably omit noticing the singular and beautiful variety of chintzes which this house displays, fully equal, and in most instances superior, to the best foreign productions.

the example just cited, there need be little apprehension of their being worsted in the industrial race of the present age, nor that the beauty and utility of their productions, in whatever branch of industry they may be engaged, suffer by a comparison with their foreign competitors.

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#### PAPIER-MACHÉ.

Among the many inventions of modern times for diffusing the conveniences and the luxuries of life, there are few which have higher claims to our admiration than papier-maché. Whether it meets the eye in the shape of furniture, or in articles of general domestic utility, its beauty and agreeableness are equally striking. Nor is it less so when applied to ornamental purposes. The nature of the material also admits of almost infinite application, from its ductility, its lightness, and its comparative economy. Admitting a polish almost equal to that of glass, and receiving colours nearly as bright as those transfixed upon the canvas, it furnishes an attractive surface both to the industrial skill of the humble artisan, and to the entrancing genius of his more elevated and intellectual compeer.

Assuming that our neighbours are entitled to the credit of inventing this beautiful and highly useful material, it is clear, by their own acknowledgment,\* that we were the first to apply it to ornamental and decorative purposes. "Les Anglais," says the writer of the article in question, "font en carton les ornemens des plafonds que nous faisons en plâtre;" at the same time he enlarges upon their durability, as compared to plaster compositions, and the difficulty of detaching them from the surface upon which they are

\* *Encyclopédie Méthodique* : Article, Moulage.

laid, and also upon their comparative economy for all ornamental purposes.

Acknowledging the truth of these remarks, and confining the application of papier-maché to articles of general domestic utility and ornament, we cannot refrain from congratulating our countrymen whose ingenuity and industry have imparted to this material so much beauty, so much elegance, and so much really artistic taste. In these respects we are far a-head, not only of France, but of the entire continent. Indeed it may almost be called an industrial art of our own; for in papier-maché work, Birmingham has no rival, nor anything even approximating to an equal.

It does not accord with the plan of this little *brochure* to enter into a minute detail of the rise and progress of any particular branch of industry, although there are materials sufficient for an interesting chapter upon papier-maché alone, but rather to note the particular excellence of each, whether of home or foreign production; so that we may be enabled to estimate the relative chances of all who may enter the *Great Industrial Arena* of '51. Keeping this object steadily in view, we shall content ourselves with pointing public attention to the papier-maché productions of Messrs. Jennings and Betteridge, of Halkin Street, the principal seat of whose manufacture is at Birmingham, where they generally employ from three to four hundred hands almost exclusively in manufacturing that material.

Formerly, the japanner was limited to iron plates for tea-trays, and other flat objects; while for furniture, wood was almost universally used. Paper was originally applied to these useful purposes, about fifty years ago, at Birmingham, by the above-mentioned firm, who have attained the highest excellence in this branch of industry.

In Paris, the papier-maché manufacture is pursued with considerable success, a few of the most skilled English workmen having migrated to that city; but, compared with the



manufacture of Birmingham, it is decidedly inferior, both in quality and in taste. Indeed, so keen is the competition of English work against that of France, even in her own market, that she imposes a duty upon its importation, which, in many instances, amounts to a prohibition. For example, upon a set of tea-trays—the duty being levied by weight (one franc per pound)—weighing eight pounds, and worth about twelve shillings, a duty of eight francs is imposed; while upon a set worth about ten pounds, the same amount is paid; therefore, the duty completely excludes the low-priced articles, which would command a large sale in France; while upon the higher-priced one, the demand for which is comparatively limited, it is exceedingly light.

The application of papier-maché to ornamental and decorative purposes is equally deserving of notice, not only from the amount of capital and labour employed upon it, but also from its beauty, its variety, and its general utility. Although nearly equal to wood in durability and ornamentation, it is far less expensive; and economy is a great point in all industrial applications of art.

In an able article on the subject of papier-maché, in the *Art-Union* of May, 1847,\* we find these pertinent observations:

“The obviously growing taste for the beautiful has brought forward and supported numerous highly successful inventions

\* We are greatly indebted to the *Art-Union* for a diffusion of the knowledge of art in this country. The beauty of its type, the general accuracy of its engravings and wood-cuts, and the instructive quality of its articles, present a combination of illustrative excellence which is unequalled, either here or on the continent. Nor ought we to forget our instructive contemporary, the *Builder*, who seems, in some departments of decorative illustration, to

“Snatch a grace beyond the reach of art.”

There is also the *Journal of Design*, the *Illustrated News*, and last, though not least, the *Athenæum*, whose ability is universally acknowledged, especially in relation to the highest intellect of art.

for interior decoration, which have been designated by some as substitutes for art ; but such they by no means are, being, in truth, happy facilities, exhibiting as much the essence of the art as the clay from the hand of the sculptor ; the art is there, and the quality of the art is not improved either by the subsequent marble, gold, or silver."

Admirably expressed. A question of art is not a question of material, but the latter becomes a question of cost, according to its own value and the difficulty of its elaboration. Hence the widely-spread desire for tasteful embellishment can be gratified at a comparatively economical rate, by applying papier-maché ; and had the qualities of that material, for ornamental purposes, not been thoroughly tested, the art of decoration could scarcely have enlarged its preceding limits. Scrolls, foliage, cornices, mouldings, and other internal ornaments, now attract us in every direction, wherever decorative art is applied ; and the same boldness of relief, the same exquisite fineness of touch, and the same variegated beauty, are as visible as though the costly material of wood had been used.

And not only upon flat surfaces is papier-maché used ; it is applied, upon an equally extensive scale, to frames, both for glasses and pictures, but with this decided advantage as compared to wood—it is much lighter, admits of greater ornament, and is much more economical. In this department of industry the foreigners are greatly behind us, not only as regards the ornamental branch of the art, but also as regards the manufacture and the manipulation of the material.

The country is mainly indebted to Mr. C. Bielefeld, of Wellington Street North, Strand, for the extension of papier-maché to all kinds of ornamental purposes ;\* having, by his

\* The *Carton-Pierre* productions of Messrs. Jackson, of Rathbone Place, are equally deserving of notice ; indeed the peculiar ability of the latter as an excellent draftsman, has been greatly instrumental in disseminating this

skill and enterprise, almost made it an art of his own, if viewed in relation to the number of purposes to which he has applied it.

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## CARPETS.

Great progress has been made in this country during the last six years in taste and design, as applied to elegant and ornamental articles of furniture, especially in carpets; and although we have nothing to equal the magnificence of the productions of the Gobelins and Aubusson, we have a manufacture of the humbler kind of art, which comes within the range of the largest portion of society, and is equally welcomed among the select and wealthy few, from its general beauty and utility. The Brussels, tapestry, and velvet carpets of England are unequalled throughout the continent, both as regards quality and price, and would command a ready sale in France, were a moderate duty imposed upon their importation; but so long as the latter persists in levying a duty by weight, which amounts to about sixty per cent upon the value of the article, the French must content themselves with their inferior *moquettes*, a humble imitation of our velvet piles, and even these, from their comparative high price, are limited to the few.

The carpets of the Gobelins and the Savonnerie are seldom valued lower than from two hundred to three hundred pounds, and are necessarily confined to an extremely limited circle. Indeed, they are the mere hot-bed productions of the State, forced, for some purpose or other, at an enormous cost; but assuredly not for the improvement and extension

material in ornamental purposes. We have borrowed the *Carton-Pierre* art from France, as its name implies; and, with our usual practical dexterity, have improved—materially improved—upon the invention of our neighbours.



of the carpet manufacture in France, for the style, the character of the designs, and the *tout-ensemble* of the work, place it on too high ground for the imitation of the humbler and more useful branches of manufacture. The next in richness are those of Aubusson and Felletin, in the department of the Creuse, of both long and short nap, and of the velvet kind. The principal establishments are Sallandrouze and Rogier, whose choicest productions are about one-fifth the price of those of the Government.

“Unfortunately,” says M. Flachet, “the general arrangement of our habitations has precluded us from the use of carpets. In this respect we are much behind the English, and even the Dutch. A progress of this kind in taste and convenience can only follow in the train of others; and first we must suppress the duty upon wools, in order that our manufacturers may be enabled to produce cheaply, as well as superbly, this useful article.”

It is clear, then, that we stand upon comparatively safe ground, as regards carpets, if we except the more costly productions, which can have but little affinity with the purport of the Exposition of '51, which is rather to stimulate the manufacture of the useful and the beautiful, than the *outré* and out-of-the-reach productions. The continent has no manufacture to equal the carpets of Whytock and Templeton, both of whom are noted for the beauty and excellence of their productions. Nor even in the richer middle class carpets can France surpass those manufactured by Jackson and Graham, whose productions in this branch of industry are highly creditable to the country. The carpets which we saw in the looms at Messrs. J. and G's., were better woven and much lower in price, when compared to similar productions of the French; and, although the designs of the latter were extremely beautiful, the English possessed equal merit, not only artistically, but in being better adapted to the

architecture and decoration of our interiors—a point of considerable importance in the best and most *recherché* arrangement of furniture.

The *Marqueterie-work* of the establishment, to which we have alluded elsewhere, as surpassing, in some respects, the French manufacture, is of the most magnificent order of workmanship, and reflects the greatest credit upon the enterprise of Messrs. J. and G. They have materially advanced the skilled labour of the country by their productions in this branch of industry, and France even will have some difficulty to surpass them.

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#### FIRE-ARMS, &c.

In this department of industry England has hitherto enjoyed a high reputation, and there can be little question that she will maintain it. Her Mantons and Purdays have spread her name far and wide, and there is no instrument of destruction to equal the double-barrels of these ingenious mechanicians, not only from the certainty of their power, but also from their comparative safety, which is the result of goodness of material and workmanship.

“The pretext of the public interest,” says M. Flachet, “has confined the manufacture of arms to Government superintendence. Hence we are inferior to the English in the manufacture of fire-arms, because her industry is free. The low price of the materials is not the only advantage enjoyed by England; she has her skilled labour and her exquisite machinery, both powerful elements to enable her to arrive at perfection.”

Saint-Etienne, and even Solingen,\* have no chance then

\* We say Solingen, because we have seen a Prussian musket of a new invention, which has been comparatively perfected in this country, and, as

with Birmingham in the fabrication of muskets, or other fire-arms; nor have Messrs. Prelat and Lepage, of Paris, when pitted against the highly-disciplined mechanism of Purday, and of Witton and Daw, whether we regard the quality, the safety, or even the beautiful finish of their fire-arms.

Again, as regards rifles, which are in almost universal demand, and of special utility to the emigrant wherever he may be located, we are unequalled. There will be considerable competition in this department of manufacture, as America, France, and Prussia will, in all probability, send the finest specimens of their workmanship, not so much as productions of industry, which may yield a profit from their relative superiority, but from the pride of perfecting, or excelling in, the manufacture of the rifle. All, more or less, will be animated with the feelings of sportsmen, rather than that of manufacturing enterprise.

England, perhaps, has paid greater attention to the manufacture of sporting machinery, if we may be allowed the phrase, than any other country; and from the simple cause that there is a larger demand for them here than abroad; and not only does that demand include quantity, but quality also, a matter of the highest importance, as it always operates as a strong stimulus towards arriving at perfection.

The highest degree of perfection in the manufacture of rifles is that attained by Witton and Daw, of Old Broad Street, City. These manufacturers have brought the most-advanced science, mathematical and chemical, to bear upon this branch of industry, which are equally shown in the

we are informed, by the order of the Prussian Government itself. The mechanic who has improved the musket is Mr. Evans, of the firm of Evans and Son, Wardour Street, Soho, whose mechanical skill is frequently called into requisition by almost every government in Europe, including our own. At the factory of this highly-skilled mechanic, we examined machines to which the continental productions cannot compare, either for quality, or nicely-finished work.



improved method of boring, and in the superior toughness of the metal. Such are the peculiar qualities of the rifle of Messrs. Witton and Daw; to which may be added another,—lightness combined with safety,—which has hitherto been difficult to effect.

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## IRONMONGERY—IRON-WORKS.

It is remarked by M. Dupin, in his *Suggestions*:

“That where iron has undergone the processes, where subsequent mechanical ingenuity can compensate, French skill recovers from the disadvantage of the more expensive raw material. It is by these means she is enabled to sell, even to England, certain kinds of articles of a more expensive kind.”

This remark can only apply to a few articles upon which the fine taste, or the chemical skill, of France, has been expended, either in order to gain a prize at an exhibition, or to please the fantastic *penchant* of an exclusive class of society. In almost all articles of Birmingham, Sheffield, and Wolverhampton manufacture, which enter so largely into the ordinary wants of all classes of society, and especially in those articles where skilled labour is employed, the relative excellence of French, Prussian, and English workmanship, can be fairly and justly appreciated; and upon even a cursory observation, the superiority of ourselves, in this respect, is palpably manifest. It should, moreover, be borne in mind, that in articles intended for domestic uses, which are of the most trying nature, the first consideration should be strength, the next simplicity of application, and the third beauty of design; if all these qualities can be combined, so much the better, not only for ordinary wear and tear, but also as contributing to the comfort and advanced taste of those who are in the habit of using them. In each and all of these respects we are superior to the foreigner, which may be easily per-

ceived by a stroll through the large magazines of London and Paris ; several proprietors of the former being *bond fide* manufacturers themselves of the articles which they exhibit, either by means of their own designs, or the capital which they advance to the comparatively needy manufacturer. The Capitol of our neighbours, which is generally considered as the epitome of skilled industry, has no such establishment for ornamental domestic articles of iron, steel, and kindred materials, as that of Benetfink and Jones, for example, of Cheapside, which may be ranked with Messrs. Osler, in glass, or Messrs. Copeland, in porcelain-china, magazines unrivalled for the beauty, the richness, and the variety of their respective productions, and to which the continent has little—indeed nothing—to compare.

Nor need we say much upon agricultural implements. In this branch of industry we are far advanced, beyond even the most skilled workmanship of Belgium or America, the latter being confessedly next to us, and who forms, as it were, an intermediate point between the continent and ourselves. The skill and energy of Mr. John Howard, of Bedford, has placed this important branch of industry upon very creditable grounds ; so much so, that agriculture in this country will be considerably indebted to him for its emancipation from its torpid, and hitherto peculiarly *untoward*, state. Yet this branch of industry has been plied, in this country, under comparatively disadvantageous circumstances, partly the result of accident, and partly of necessity ; for the establishment of Mr. Howard is at Bedford, which has no immediate water carriage, either with the metropolis or any other great central point of demand, which must have materially augmented the cost of the raw and manufactured materials. Notwithstanding these drawbacks, the most skilled implements for agricultural uses have been manufactured by Mr. Howard, and transported to every part of England, which is worth mentioning, if merely with the view of illus-

trating the indomitable characteristics of English industry, as compared with those generally prevailing on the continent.

And last, though not least, in metalliferous productions—electro-plating. In this branch we have no competitors worthy of the name. Messrs. Elkington, of Birmingham, have almost made this art their own. To dilate upon it would be superfluous, except for the purpose of showing that these inventive manufacturers have reached the true end of art in their productions, so seldom obtained—the utmost beauty of appearance by the exercise of the smallest possible means. The electro-plated articles of Messrs. Elkingtons have the fine relief of silver, with its rich frosted beauty; yet the price is materially below that of the pure and solid metal, a point of excellence hitherto unattained.

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#### ARTIFICIAL FLOWERS, &c.

France still maintains a marked superiority in the manufacture of artificial flowers. Her beautiful taste is exercised upon this production with the nicest judgment, for here the delicacy of the female hand is predominant. The study of nature, in all her charming conformity of colouring is early taught, as we have frequently remarked, to the infant mind of France, in order that it may be enabled to turn that instruction to a profitable account in after-life; and in the manufacture of flowers that instruction strikingly manifests itself. A stroll through the factories in the neighbourhood of the Rue St. Denis and Montmartre, will easily satisfy the observant mind, that the perfection at which France has arrived in this branch of industry, must have been by a



combination of advantages which we can but faintly hope to acquire in this country, at least for a series of years, even if we adopt the same means as France. Early instruction in the rules of art, as regards the imitation of nature in all her varied phenomena, especially the combining and contrasting of colours, the imitation of flowers with their inimitably shaded tints, and the peculiar conformation of the foliage in plants and trees; all these elemental qualities of art have been taught in their schools of design, especially in female departments of instruction; hence the facility and dexterity of the latter in the manipulation of flowers.

Again, France has the *prestige* of fashion in her favour, which she has acquired by her excellence in taste, and which gives her a great advantage, especially in this department of industry, inasmuch as she can prepare her stock for the seasons without the apprehension of being superseded by a rival, or having it thrown upon her hands if she ventures into any new path of imitation or invention.

Not so the English flower-makers; they are compelled to wait for the appearance of the productions of their masters in this respect; and so rigid is the law of fashion, or rather so capricious in its operation, that if the former venture to produce a style peculiarly their own, however excellent in point of taste or execution, it is *pooh-poohed* down simply, because, in many instances, it happens to be English and not French. Fashion, or rather its foolish and ignorant votaries, is generally in the extreme in this respect; for there are many of the productions of this country which equal, and in some instances surpass, those of the French, notwithstanding the general good taste exercised by the latter. Hence, in some measure, the utility of the Exposition of '51, which will go a great way to dispel many foolish illusions, as regards the superiority of our foreign competitors.

Nevertheless, we have made considerable progress in the

manufacture of flowers within the last ten or fifteen years, deficient as we have been in the elementary knowledge, as compared to our neighbours, and still continue to improve, notwithstanding the marked advantage of France over us, as regards fashion. There is an aptitude in the English mind to imitate and improve; and were it educated in the first principles of the art, it would soon excel its rival, even in the inventive power.

Nor are these assertions indulged in simply to pen an antithesis, or round off a period; their truthfulness may be tested by an examination of the flower factories in and around London, where almost every kind of excellence may be observed, although not so prominently displayed, as in many instances by our foreign neighbours.

The Messrs. Foster, of Wigmore Street, who rank the highest in this branch of industry, and to whose energy and taste we are largely indebted for our progress in flower-making, can exhibit an establishment as well arranged, and as amply furnished for manufacturing purposes, as the best in France. Nor are they deficient in skilled labour, having availed themselves of French artisans to instruct and improve their English hands. Here we saw a Frenchman presiding over the dyeing department, and a Frenchwoman directing about thirty or forty Englishwomen in the art of making flowers; nor were the latter, in the gross, deficient either in dexterity of work or taste of arrangement.

However excellent may be the productions of Messrs. Foster, and we willingly accord them the highest excellence yet attained in England, still we must fairly acknowledge that the French excel us—in a few instances far excel us—in the manufacture of flowers, and there are but few in which we excel them.

There are various trinkets, in the manufacture of which the foreigner is superior to us; namely, beads in steel, glass,

or hard wax, ornaments for purses—gilt, silvered, or in plain steel, although the material for making them is cheaper here than abroad. In manipulating wool and steel, Berlin is exceedingly skilful, besides her wire-work, which is largely imported by us, and in an almost infinite variety of articles. Strange that Birmingham, with its minute excellence of workmanship, and with its superior command of the raw material, should be deficient in these departments of industry; yet so it is, and Paris and Berlin have but few competitors in the English market.



## CHAPTER IV.

## THE ART OF DESIGNING AND DECORATING.

THE ancients were well aware that the perfection of art consists in combining, with the greatest possible effect, the useful with the pleasing—

“Omne tulit punctum qui miscuit dulci;”

and the studies of our artists and artisans should, therefore, be directed to imparting an useful purpose to articles of ornament, and an ornamental character, to articles of use. The *Exposition* cannot fail to prove highly suggestive to them on this important subject. Whatever is *new* to them in the category of the beautiful will at once attract their attention; and on studying the peculiar characteristics of the work, in order to detect the secret by which the effect has been produced, they will, after a series of such observations, easily arrive at the conclusion, that the qualities required in a work which the artist aspires to have ranked in the order of the beautiful, are very simple and few—namely, unity of designs, symmetry of parts, and harmonious colouring of the whole. Here, he will become master of the entire theory of the *science* of his art, just as the mathematician becomes master of the entire theory of the science of mechanics, as soon as he becomes thoroughly acquainted with the few and simple laws by which nature controls matter and motion. The progress which either of them, from this point, make in

practical knowledge, will depend upon their studying all that *has* been achieved or found out in their respective walks, and upon their capacity for improving upon the ideas, or enlarging the discoveries of others. In the latter respect, Englishmen have generally shown a remarkable aptitude; and if, as regards the former, our artists and artisans have been deficient, the defect must be attributed, not to any inherent want of *application*, but to a haughty prejudice against being indebted to foreign rivals for instruction! As well might Herschel have disdained to glean anything from the researches of La Place, or La Place to have availed himself of the discoveries of Herschel! *They* did not act as if they were morbidly sensitive of being thought to owe anything to each other, but as reciprocal lights to each other in their common path, and both equally delighted and served mankind; indeed, amongst the MEN OF SCIENCE of different nations, there is no surly independence, no jealousy, no contempt, no fear of each other. This is owing to the constant and friendly intercourse and correspondence which they keep up with each other, by means of their several institutions for the advancement of science; and we have no doubt that, if *Industrial Expositions* also become general, they will soon infuse the same spirit of philosophic fraternity into the *Men of Manufactures and Arts*.

We have been led into these remarks from perceiving a great deal of the old leaven of jealousy and hatred towards foreigners employed in this country, among different classes of our artisans, from a mistaken notion that the foreign workman is usurping the rights and privileges of an English workman, and not only depriving him of his rights, but also diminishing the amount of his wages, by the keen competition and superior skill which the foreigner, in certain special branches of industry, brings to bear upon him. Nor is this feeling confined exclusively to the working-men; it extends even to the masters, in several branches of trade and

manufactures, and operates materially against that fusion of spirit and enterprise which alone can secure the general advancement and well-being of the working-classes.

We find the feelings of jealousy and assumed contempt for the foreigner more particularly prevalent amongst decorators, designers, &c., therefore shall devote a few remarks to this branch of industry, with the view of showing, not only its injustice towards the foreign artisan, but also its folly as regards the interests of the English workman himself. The perfection of the art of designing, as we remarked at the commencement, is to combine a refined taste with unity of purpose ; but little regard is frequently paid to this element of the art, so as to render the work produced at once pleasing to the eye and agreeable to the judgment. There is no lack of talent or imagination in England ; but the designer too often travels away from his first conception, and wanders into any style which he thinks likely to produce additional effect, instead of pursuing his design truthfully and chastely.

Without an intimate acquaintance with the sciences of perspective and of the five orders, every design will be obscure in execution. They are the basis and the spirit of the art, and must be carefully studied by every one who would excel in it. The beauty of outline, which consists in correctness and congruity, is the acme of perfection in any drawing of an article of taste. But this is too frequently overlooked from an ambition to display a luxuriance of taste by a superfluity of ornament, which, while it is detrimental to the effect of the work, also renders it more costly than is advantageous even for the artists themselves.

Practice and perseverance are necessary to make a designer, but, after all, designing is a natural gift, in the same way as painters, poets, and composers are gifted. A youth may be taught to draw, and copy the designs of his instructor, to perfection, but it is a different thing for him to produce an



original design ; still it is, as we have said, necessary even for a genius to perfect himself in the fundamental principles of his art, and when he has done so, the higher studies in design will become easy to him, and his conceptions will no longer be obscured by that unpleasant *embarras des richesses* which prevents the less accomplished designer from displaying his resources with the best effect.

The mistake of English designers is, that they do not follow out the order or style of design upon which they start. When once they have commenced they do not know when to leave off, but, after having made a good design, persist in encumbering it with fancied improvements, until the first and best idea is completely overlaid. Another misfortune is, that where the combined talents of two artists of different classes are required, they do not study, either by conspiring together to produce an harmonious design of the whole, or by the one adapting his ideas to those of the other, how to produce a *tout-ensemble* which shall at once strike the eye of taste as being perfect for its consistency, without which, though you may produce a stupendous effect, you never can produce a grand one. For instance, the internal appointments and fittings of an apartment should harmonize with its style of decoration ; but in this country the upholsterer violates the design of the decorator, who has himself violated the design of the architect. The architect may have erected a mansion in the Gothic style, the decorator gives to the interior an air of the Saracenic, and then the upholsterer fits it up perhaps in the quaint style of the Elizabethan era. And to make the matter worse, perhaps neither of the three has strictly followed his own design, but has been prompted by a meretricious ambition of blending together as many of the leading features of the several styles in his art as possible. Hence foreigners justly say that true elegance is rarely to be met with in this country.\*

\* It is just to observe that many exemptions from this reproof are to be found in the country mansions of our aristocracy, for which they are mainly

The chief elements of design are correctness and purity of style. To attain correctness each object must have the proper proportion assigned to it in the design which its uses and its nature suggests; and everything deserving the title of beautiful must be invested with an outline of definite character; and lastly, whatever style of ornament is commenced upon, that should be strictly adhered to. For instance, the styles of the *Renaissance* and *Louis XIV.* are both very chaste and beautiful, if religiously adhered to. In these cases the ornaments should be kept light, and symmetrically placed; but this is scarcely ever done correctly in this country, through a desire to do more than the styles will admit of, and thus overloading them with ornaments which are out of place. Besides what we have said of the harmony which should be preserved between the architecture, decoration, and furniture of a mansion, the harmony of colours should also be remembered. But this is frequently not the case, for you will find an' extravagantly luxurious carpet destroying the whole effect of the other decorations, the pattern being much too large for it, the colours not corresponding in tints with the wall, the chairs quite lost upon it, and the curtains made to look insignificant. All this arises from a want of taste, either in the party who gives the order or in the man of business. Both are culpable in this matter. Monopolists, whose only object is to get business, have made great innovations upon all trades of taste; and the passion of our higher classes for foreign productions of former ages,

indebted to one or two English decorators, who have obtained great excellence in their art. The Messrs. Morant of Bond Street, and Messrs. Crace of Wigmore Street, may be cited as examples in point, and whom we have mentioned in an appropriate part of this pamphlet. But there is one artist of great merit as a decorative designer, who has devoted the whole energies of his mind to this single branch of art, and whose success has been commensurate with his industry and application—we allude to Mr. Wood of Percy Street, whose designs for internal decorations are fully appreciated by the ablest and most ingenious manufacturers and decorators.

buhls, tapestries, &c., have set every manufacturer to work to corrupt what taste we have, whilst the artist must administer to whatever may be the *penchant* of the employer. Hence the introduction of the *arabesque* into ordinary rooms, which is quite out of character, and destroys the effect of everything which is placed in connection with it. It is adapted, as it was intended, for no other purpose than entrance-halls, vestibules, staircases, &c.; and to apply it to other purposes, merely because it is a foreign style, is ridiculous.

Draftsmen and designers here should make themselves acquainted with the ideas and styles of foreign artists, who first taught us what variety ornamental style is capable of. To compete with them we must have a true School of Design, for it is not talent, but education, which is wanted to enable our artists to rival, and even outstrip, those of other countries. Those to whom the education of our aspiring artists is confided, should be men possessing large views and great knowledge of the several branches of the art, and the education afforded should not be merely general, and therefore superficial, but the utmost care should be bestowed in perfecting the pupils in every particular department of the art for which they may show a special bias and aptitude. It is to be regretted that no such school has been established in this country as yet, although great improvements have been effected within the last ten years in this important branch of education, as Somerset House clearly testifies.



## CHAPTER V.

## DECORATIVE ART IN MANUFACTURES.

WE have already remarked, that the chemical knowledge of France has become one of the most powerful elements of her national industry, and, as M. Blanqui observes, "there was always merit in being acquainted with it, there will soon be shame in being ignorant of it."

The application of chemistry to the production of colours, has hitherto given to France a marked superiority in the manufacture of silks, in the printing of cottons and woollens, and in the production of decorative papers for furniture. Minutely examining the respective qualities of the two last-named productions, and comparing them with the productions of this country, we are bound to say, that France is not moving onwards so rapidly as we are approaching her. Indeed, the distance is almost daily diminishing between some branches of industry, and even in these we are superior to her, especially as regards the quality and finish of the work. In the combination of colours, in that fine taste, as regards design, she still displays her master-touch; nevertheless, even in these respects, we are greatly improving, and shall soon deprive her of her marked pre-eminence, if we cannot actually supersede her.

The chintzes of Messrs. Swainson and Dennys, of Bond Street, who have long attained the highest excellence in this branch of industrial art, are unequalled, either in France

or elsewhere, for felicitous designs, and for high-toned, harmonious colouring, as well as the quality of the cloth upon which the colours are imprinted—a material point, though not observed by the French printers so closely as by the English. Indeed, an Englishman was the first to introduce an improvement in chintz-printing into France, when on a visit to that country in 1814; and since that period, the higher class among our neighbours, have continued to prefer the English chintzes to the productions of their own countrymen. And to such an extent has this preference been carried, that the French have copied most of our best designs, in order to supply their home demand, a prohibition being placed upon the importation of English productions.

The struggle has been long and strong between the English and French printers, more especially in chintzes. In other branches, such as printed muslins, cottons, woollens, &c., they have hitherto surpassed us, although we are rapidly advancing upon them, even in these. France early applied her luxuriant art, and her diversified chemical knowledge, to these branches of industry, and partially with considerable success to chintz-printing, through the impetus given to the latter, by the English markets being thrown open; but, when our printers had recovered from the first pressure of foreign importations, they quickly recovered their position, and still continue to maintain it. For the superiority of chintz-printing, we are principally (if not wholly) indebted to the firm\* just mentioned, who have

\* It is necessary to remark, that there are but few chintz-printers in this country, though many of the large upholsterers and decorators persuade their customers that the chintzes which they offer for sale are of their own designing and execution. This is not right; but it belongs to the conventional morality of the trade. Messrs. Swainson and Denny print more than three parts out of four of the stocks exhibited by the large dealers in chintzes; indeed, this country is indebted somewhat largely to the ingenuity and industry of Mr. Denny for many of the improvements in designing and

spared no expense, either in designs, or in perfecting the execution of their works.

The art of *paper-staining*, and *paper-hangings*, in which the French, in some respects, are more proficient than ourselves, has now become one of the most interesting and useful branches of industry, whether we view it in relation to the amount of skilled labour and capital employed, or the elegance, refinement, and convenience, which it supplies to our social wants. There are several establishments devoted to this branch of industry; some of them are upon a large scale, and have arrived at great excellence in their respective productions. In the higher branches we are competing with France; in the humbler and more useful we greatly excel her. Where cheapness and excellence are combined, the French are behind us; in the elegant and tasteful they still bear away the palm. We shall simply content ourselves with noticing the greatest improvements in each branch of the art, in order that we may fairly estimate the chances of our successfully competing with the foreigner, next year. The most marked improvement has been effected in paper-staining, by Mr. E. T. Archer, 451, Oxford Street, whose machinery is capable of producing, both at a cheaper rate, and with equal beauty of colouring, the better class of work, in which our rivals, hitherto, have maintained the supremacy. It is also to the same spirited manufacturer, that we are indebted for the oak-grained paper, which is so generally used, although others may have improved its manufacture. But the imitation marble paper, which has

printing in this country An artist of no mean acquirements himself, having designed most of the patterns worked in the concern to which he belongs, he combines the qualities which are peculiarly essential to give an impulse to a particular industry—the power to conceive and the practical skill to execute—qualities but rarely met with, yet much desiderated, at all times, and in all pursuits. From this gentleman we also gleaned the fact that the French have frequently copied our best designs, but have seldom improved them either in changing their character, or in executing their precise form.



arrived at such perfection in this country, has been mainly indebted to the skilful workmanship of Mr. Archer, whose rich grainings are unequalled both here and abroad. Nor ought we to omit noticing his Chinese papers, upon which, as many as eighteen sets of blocks are used, and each set containing four, making together seventy-two blocks:—a combination of skill and labour, which has given a new impulse to paper decoration, and placed it upon high ground when compared to our foreign rivals. There are also several other manufacturers, deserving of notice, whose productions are a credit to the industry and taste of the country. Messrs. Turner and Williams, of Pimlico, are particularly noted for the excellence, the beauty, and the truthfulness of their printed papers; and Messrs. Hinchliff, of Wardour Street, Soho, may be ranked in the same class, as they have equally advanced the paper-staining branch of industry towards even surpassing that of France.

Viewing another branch of art—graining on wood—we are, as a rare exception, enabled to state that this country stands alone; it has no foreign competitor worthy of notice. In the *marqueterie* art—in-laying wood in the manufacture of ornamented furniture—the French have long had the pre-eminence, from applying their almost universally diffused taste to that particular branch of industry, although one or two of our manufacturers are treading fast upon their heels, even in this branch. But this kind of work, even in its most finished state, and leaving out of consideration its costliness, partakes too much of the quality of minute prettiness, which rather indicates a trifling with good taste, than a thorough relish of its broader, more elevated, and richer affinities. Yet, when we know that the almost magic application of colours will produce the same effect as the minute operations of the hand with a machine—we said the same, nay, still *greater* effect—the cultivated mind then begins to admire what before it was disposed to

treat with a species of patronizing contempt. We are indebted to Mr. Moxon for thus stepping beyond the range of decorative art in this country: he has made it, by the magic of his colouring, an art of his own. His imitations of grained wood, and his marbling, are the finest efforts of the age; and clearly demonstrate that genius, applied in a right direction, and even in a comparatively humble walk, may achieve an excellence which immediately opens a new path for industry, by simply creating a new social want. There is nothing in the decorative branch of art that we have seen on the continent—yet by no means limited observers—to equal the works of Mr. Moxon, at Buckingham Palace, especially the graining of the grand staircase, which seems to unite all the requisites of finished art—beauty, simplicity, and truthfulness.

Nor ought we to pass by another branch of art which is assuming some importance among us—namely, sculptured ornaments. In the “Report on Arts, and their Connection with Manufactures, 1836,” it was generally acknowledged that “designs were as well drawn in this country as on the continent, but that the French workmen, especially, are collectively better educated than the English workmen; consequently the French artist has a greater chance of getting his designs well executed than the English artist.” Granting this view of the condition of ornamental art in this country to have been the right one, it has, we are happy to state, but little application to the present time. Let any one examine the sculptured ornaments of the new Houses of Parliament, executed by Mr. Thomas, and compare them with the French, either in design or execution, and he will conclude that we are rapidly advancing, if we are not actually outstripping, our neighbours in this branch of art. Again, there are workmen below Mr. Thomas, who imitate him in the beauty of his designs, and the marvellously rapid execution of his work, and to whom he has imparted a portion of

his skill, which, from a spirit of emulation, cannot fail to extend itself through all the gradations of the superior class of workmen.

And here let us do justice to a foreign artist, whose genius and enterprise have been greatly instrumental in diffusing a taste for decorative art amongst us. We allude to Mr. Sang, whose works are an honour to the age, as they mark a new era in the application of the arts to multiplying the comforts and luxuries of social life, and which have placed him deservedly amongst the first of the decorative artists of the day. Mr. Sang was a pupil of the celebrated Gaertner, the director of the Royal Academy at Munich, whose knowledge and practice of art, in its highest walks, were universally acknowledged, and from whom doubtless he acquired the secret mastery of the art which he has made peculiarly his own. The introduction of the Saracenic, or Arabesque, style of decorative art into our clubs, the mansions of our nobility, and other appropriate buildings, marks an improvement in the taste and refinement of the public mind, and will soon remove the too-much-taken-for-granted stigma of our being comparatively indifferent to works of art, and to the diffusion of those works among the mass of the community. It does more—it shows, to use the language of Mr. Sang himself, “that the English have comparatively divested themselves of their Puritan prejudices, and prefer noble forms and glowing colours to unadorned halls, and the Quaker’s drab and whitewash.”

The Conservative, the Carlton, and the United Service club-houses; the mansions of the Duke of Hamilton and the Marquis of Salisbury; all these structures contain some highly-treasured evidence of the beauty, originality, and richly-diffusive style of art which Mr. Sang has naturalized amongst us, and which admits of such extended application in the decorative branch of industry. Let us honour genius whencesoever it comes, especially when its power is applied



to the improvement either of our mental or physical condition ; whether it manifests itself in the heaven-toned strains of an opera, or the magic combinations of colour and design in the decorative arts, it alike improves our social and our moral existence.

Extending our view to more general decorative art, especially in relation to its combining the useful with the beautiful, we are naturally attracted to the works of the first English decorators. In this class we may safely assume that Messrs. Crace and Son hold the highest station ; although there are others, eminent in their peculiar styles, whose taste and ability must be recognised. Indeed, Messrs. Crace may be said to have been the first who have elevated decoration to a branch of the fine arts ; for they alone, on an extended scale, have introduced order, harmony, and uniformity of character in their works.

We remarked, in the chapter on the “ Art of Decorating,” that “ the perfection of designing is to combine a refined taste with unity of purpose, and that but little regard was paid to this element of the art ; so much so, that even many of our best decorators rarely realize it in their works. For instance, it is seldom that a decorator strictly adheres to a single style, or illustrates a distinct age of art—one of the principal beauties of decoration—but more frequently gives you a combination of several, so that his work presents an incongruous effort, as though the ideas of the artist had been jumbled in a kaleidoscope. Here a carpet of one style, there a paper of another, a table of a third ; and so on, through all the gradations of incongruity, until the eye is fatigued with detecting the defects, instead of being charmed and soothed with the harmonious details of a well-conceived whole. We repeat, that Messrs. Crace have raised the decorative art to a higher point of excellence than it has hitherto attained in this country, as the House of Lords, and other works of a public nature, clearly testify. If they adopt

one style of decoration, on however large a scale, the execution is uniformly and correctly consistent, even to the minutest object, either in furniture, in objects of relief, or on the surface of the walls; therefore, your eye is not offended with a glaring absurdity as it ranges round the apartment, nor arrested with a heterogeneous and out-of-the-place object, as is commonly the case in even costly decorations in this country. The Messrs. Morant have also attained a high name as decorators, and many of their performances deservedly entitle them to it.

## CHAPTER VI.

## COMPARISON BETWEEN BRITISH AND FOREIGN LABOUR.

MANY attempts have been made during the last sixteen years to solve the interesting problem as to the relative capacity, condition, and prospects of British labour and foreign. Tours at home and abroad have been undertaken for the express purpose, and the most minute inquiries have been made, and the most elaborate deductions drawn, in order to arrive at just conclusions upon this important subject. Little success, however, has hitherto rewarded the researches and the reasonings of those who have devoted their attention to it; and we must attribute their failure to their having either grappled with facts, in order to extort from them a confirmation of some preconceived opinions, or their having weighed those facts by a false balance; for facts in political economy have very often a very different weight from their apparent weight.

For instance, the relative capacity of British and foreign labour cannot be determined by reference to one and the same standard of excellence; for each has a standard of excellence of its own. Their relative condition cannot be determined by reference to the remuneration which they respectively receive; for even the relative amount of the remunerations which they *really* receive, cannot be determined simply by the nominal amount of *money*-wages which they receive, but depends also upon their own relative real



value, or *productive power*, and also upon the relative value of money, measured by the quantity of sumptuary commodities which the same amount of money will command in different countries. And lastly, as to the prospects of British and foreign labour—regarding them as competitors—nothing can be more fallacious than arguing from the present to the future, or rather concluding the future from the present. Each particular Government can do much for the future condition of its working classes; and that Governments are not *ex-officio* wise is evident from the fact, that no two Governments in the world are as yet agreed upon what is the wisest course to pursue for this end. One says free-trade, another protection, a third prohibition, and so forth, through all the shades between cosmopolitanism and exclusiveness. And, further, the future condition of the working classes of each country depends even yet more upon themselves; and the present aspect of the civilized world renders it impossible for those best acquainted with the narrow jealousy and the liberal feelings, the dread of competition and the contempt of rivalry, and all the other contradictory passions which change of circumstances evoke in the working classes everywhere, it is impossible, we say, for the most acute observer of human nature to say, amidst such conflicting elements, what direction the irresistible will of the working classes will take in any country—whether for their own good or evil.

Again, there is much confusion of ideas as to the causes of our great manufacturing superiority, and therefore there cannot be a very clear understanding as to the probability of its permanence. All are agreed that we owe it to national advantages of some kind or another. One says that we owe it to the insular character and geographical position of the country; another to the superiority of our machinery; another to our abundance of mineral fuel; a fourth to our superfluity of capital; a fifth to the innate energy of the Anglo-Saxon race, and so on. Not one of these theories, standing alone, will

explain the mystery of our manufacturing superiority, though combined together they will go far to explain it. In the eloquent, and more eloquent because truly philosophic, language of Mr. Thomson, the President of the School of Design, at Manchester: "The industrial supremacy of England is not due to, nor dependent upon, any one or two great causes, but on the rare union of many; skill, capital, fuel, machinery, and the extraordinary industry of our people are the chief; and not the least is that POSITION which these advantages have gained for us, as the market in which the greatest variety of manufactured articles in the world are to be found concentrated in a single spot, with unlimited powers of production, and with the means of immediate transport to any quarter of the globe."

It will be seen presently that there is another cause of our manufacturing pre-eminence quite unconnected with those enumerated by Mr. Thomson. In the meanwhile let us return, and first to the relative *condition* of British and foreign labour.

Those who have travelled need not be told that the condition of the working classes in any country must not be strictly judged by outward appearances. The Swiss operative apparently enjoys a greater degree of comfort than the English operative, and the English operative a greater degree than the French; but this does not prove that the rewards of labour in the three countries are on the same descending scale. As a proof of this we may mention the following facts: that when a spinner's wages at Manchester were, according to a document drawn up by the Manchester Chamber of Commerce, from twenty shillings to twenty-five shillings a week, in the canton of Argovia, in Switzerland, they were only seven shillings and sixpence, while in France the spinners, in the large works at Guebwillers, averaged twelve shillings per week. This was about twelve years ago, and there has been nothing to affect these discrepancies since. The same proportions, as

regards the nominal amount of *money-wages*, still obtain in the three countries ; but, as we said at the outset, the actual amount of remuneration received depends not only on the nominal amount of *money-wages* received, but depends also upon the relative value of money, measured by the quantity of sumptuary commodities which the same amount of money will command in different countries. Now, twelve years ago, the price of the necessities of life in Switzerland was not more than one-half the price in England ; and therefore Swiss wages, considering also that the Swiss operatives usually live on their own freeholds, may be considered to have approximated to English wages. But twelve years have made a vast alteration in their relative condition. The prices of provisions in England have, during the last twelve years, been reduced by thirty-five per cent ; the prices in Switzerland have advanced about five per cent. An algebraist, therefore, would have no difficulty in showing, that if the English spinners and the Swiss were on equality in point of wages, considered in reference to what those wages would purchase, twelve years ago, the English spinners must now have the advantage of the Swiss spinners to the tune of exactly thirty per cent. On the contrary, the prices of provisions have advanced in France during the interval about two per cent, giving the French operative a slight gain over the Swiss operative, and leaving him far, very far, in the progressive means of comfort behind the English operative. This exemplifies our assertion, that a Government can do much for the future condition of its working classes. Switzerland had enjoyed all the benefits of free-trade for centuries, and therefore had arrived long ago at the maturity of her natural strength as a manufacturing and commercial people. England, on the contrary, had for centuries been crippled by the swathing bands of protection, and had not been allowed the free use of her limbs. Even under these circumstances, natural advantages, of which no country has so few as Switzerland in



a mercantile and industrial point of view, enabled us to keep up the condition of our operatives to the mark of the Swiss; and no sooner did our Government resolve that our industry and enterprise should be free too, than the condition of the English operative rose above that of the Swiss, as far as the *means* of comfort are concerned, in the proportion of nearly one-third.

Now a dry, *soi-disant* political economist would say that such a discrepancy of wages for any particular department of manufacturing industry cannot exist, as we described to exist between the wages paid for cotton-spinning in England and Switzerland. He would assert, on the faith of his theory respecting *profits and wages*, that capital could not endure such relatively high wages in England. But he would labour under a most egregious error from not being aware of all the elements which enter into the great question of wages. There is something more in it than how many hours a man works; there is this in it also—how much work does a man do in an hour? We will illustrate this for such one-sided students of the question by an example:—

The wages of a cotton-spinner at Ghent, in Belgium, twelve years ago, were exactly the same as in France, about twelve shillings a week. How then could the English manufacturer compete with the Belgian manufacturer, the former having to pay twenty-two shillings and sixpence a week? The answer is, that the energy of our operatives, the quickness of their hands, the heart and soul interest which they take in the work they are about while they *are* about it—or, in other words, the quantity of work which their almost *ferocious* industry can turn out in a given time, more than compensates the capitalist manufacturer for the superior wages *per day* which he gives. As an illustration, we quote the following passage from Mr. Thomson's instructive Notes:—

“The Belgian workman has the reputation of patient, enduring industry, which may be justly conceded to him; but

it may be doubted if that *vigorous activity which characterizes the English workman above all others* is to be found here (in Belgium). It does not meet the eye in surveying a large establishment; it is not to be found in the statements of the Belgian manufacturers themselves, nor in the public statistics of their industry. The productions of M. de Smet de Naeyer, M. de Hemptinne, and M. Voortman, loosely estimated, give an average of three hundred pieces (printed) for each worker; but the estimate of M. Briavoinne, founded on the total production of the country, gives only one hundred and sixteen for each."

Mr. Thomson continues that he thinks that the average deduced from the data of the principal calico-printers of Ghent is probably nearest the truth—namely, three hundred pieces per annum for each workman. But how many pieces will an English workman turn out of his hands in the year—pieces requiring the same workmanship in every respect? Mr. Thomson tells us that the workmen in the employment of Messrs. Ainsworth and Co. turned out at the same period a *thousand* pieces per head annually! See, then, how the account runs. The English workman receives twenty-two shillings and sixpence on the average per week; the Belgian workman twelve shillings. The wages, therefore, of the English workman are to those of the Belgian as somewhat less than nineteen shillings to ten shillings. But the English workman turns out one thousand pieces in the same number of days as the Belgian turns out three hundred, and therefore the work which the English workman does in the week is to the work done by the Belgian as somewhat more than thirty-three to ten! Which has the advantage, the English calico-printer who pays high wages, or the Belgian calico-printer who pays low wages? A school-boy, no further advanced than the rule of three, would from these data see that the high-priced labour of the English workman is cheaper than the low-priced labour of the Belgian workman, in proportion as forty-three is less than eighty.

Nor is this all. The *machinery* of the English manufacturer also is working and making a return for the capital invested in it with the same comparative rapidity; so that, on the whole, the cost of production, by man and machinery together, cannot be to the English calico-printer more than one half of what it is to the Belgian calico-printer. But, as this is a very important part of our subject, we will endeavour to elucidate it, not only inferentially, but experimentally.

Several years ago there was a general impression that it would be impossible for us to sustain our manufacturing pre-eminence against the cheap labour of the continent, which was supposed to be cheap simply because it was, in comparison with English labour, cheaply fed. Our capital and machinery, it was said, had alone enabled us to carry on the contest so far, and that we had better abandon it in despair whenever it should come to pass that the foreigner found himself, in respect to capital and machinery, on an equal footing with us. The *cheap labour* of the foreign operative, it was positively concluded, would then decide the struggle for superiority against us. So deeply were even our own manufacturing capitalists affected with this apprehension, that some of the most noted for forecast and enterprise withdrew themselves and their capital to those regions of cheap labour, taking also with them the best operative English skill they could obtain to instruct and superintend it. Amongst others who thus (wisely as it was thought) anticipated the shipwreck of our native manufactures, Mr. Cockerill, a gentleman of vast capacity and ample resources, was the foremost. He took into partnership with himself no less a personage than a foreign potentate, and we cannot relate the result of the speculation so well as in the graphic words of the author of *Notes on Cotton Printing*.

“The history of an establishment at Andenne, on the banks of the Meuse, near Liege, pours a flood of light on the position of Belgium and its capacity for competing with



England. Mr. Cockerill and the King of Holland founded there a print-ground, after the latest and most approved fashion, with English machinery and English managers and system, and all the resources which could be derived from the knowledge and experience of Lancashire. This establishment existed some years before the Revolution (1830), at which time the King of Holland's share was transferred to the Belgian Government. For some time the demands of the monster for funds in aid of the *prosperous* and *flourishing* manufactory at Andenne were granted by the Belgian Chambers, but not without reluctance and suspicion; repeated calls at last produced resistance, and when the concern was finally wound up, it was found to *have been pursuing a ruinous trade for many years*. Such was the result of an attempt to rival in Belgium, by English modes and English management, the productions of English cotton-printers at home. That establishment, after a long inactivity, is now a paper-manufactory!"

In fact, it was principally the Belgian *cheap labour*—cheap in name only, and, as we have shown, in reality twice as dear as English labour—which ruined the concern. Mr. Cockerill and his royal partner did not lack capital to give the experiment a fair trial; they availed themselves of the best English manufacturing machinery—a subject upon which no man living was better informed than Mr. Cockerill himself—of the best English processes, and of the best English skill to be procured for directing them; and yet from first to last their competition with England was a ruinous one. English capital, English machinery, English system, English knowledge—they had every element, as far as manufacturing is concerned, of English success but one—the energy and activity of the English workman. The establishment fell to the ground, because Mr. Cockerill found by experience that English labour was in reality the cheap labour after all, inasmuch as the English workman proved that he did more than

three times the work of a Belgian workman for less than twice as much pay !

It will be said that the incapacity of manufactories in Belgium to compete with English manufactories, is also partly owing to another cause—namely, to the vast market which our manufacturers possess at home. This is true ; and, though it may derogate a little from the pretensions to superiority which our operatives might found upon the failure of Mr. Cockerill's *pitting* the cheap labour of Belgium against theirs, it indicates something very promising for their future prospects. No country can carry on a large export trade in any branch of manufactured commodities—that is, carry on a successful competition with other countries in third markets—unless it has a large demand for those commodities at home. The cost of manufacture always decreases, as the quantity manufactured is increased ; and the manufacturers of England having a demand for their productions *at home* far greater than the manufacturers of any other country have for theirs, England has within its own bosom a most important element of cheap production, which other countries have not. The Directors of the “Society for promoting the Cotton Manufacture of Belgium,” complained to the Chambers, so long ago as 1838, that they could not face the competition of England even in their own country, and therefore prayed that English cotton goods should be absolutely excluded from it. “Our competitors,” they said, in their remonstrance, “commence by realizing a profit at home, which puts them in a condition to sell at a lower price in Belgium. The true economy of a manufacturer is to produce the most he can in a given time ; ‘sell cheap that you may sell much,’ is an established maxim ; but our internal demand is too small, shared as it is with our foreign rivals.” The maxim is not rightly stated here—it should have been : “You cannot sell much, unless you sell cheap, and you cannot sell much, therefore cannot sell

cheap, unless you have a *certain* demand for much; and for those manufactures in which we excel we have that *certain* demand at home, for no foreigner can compete with us for the supply of it, inasmuch as we can compete with them for the supply of these manufactures to their own markets, though we have to encounter duties of fifty, seventy-five, or one hundred per cent upon their cost. It is our vast demand at home which enables us to manufacture and sell cheaply in the first instance; this cheapness generates a foreign demand, which by further augmenting the quantity to be manufactured, diminishes still further the cost of manufacturing, and enables us to sell more cheaply still. Our great home demand (the certainty of which there can never be any fear about, because it is not a legislative boon which might be withdrawn), is therefore the parent of our foreign demand, and the magnitude of the latter will continuously increase with the magnitude of the former.

And now follows the consideration which we have described as a very promising one for the future condition of our operatives.

The home-demand of England for her own manufacturers was sufficient to establish her manufacturing pre-eminence during a long course of years, when the consumption of them was most seriously restricted by the high prices of the first necessities of life. With the masses the belly must be satisfied, before any thought will be taken of the back; and small indeed, in the palmy days of corn-laws, was the surplus left to them for their comforts and decencies after their bare animal wants had been supplied. But the cost of all commodities having been reduced *one-third*, their power of purchasing has been increased *one-half*. Thus, take an agricultural labourer earning twelve shillings a week, and expending formerly the whole of it on the necessities of life. He can now purchase the same quantity for eight shillings,



and have four shillings over, for which again he can purchase as much as formerly he did for six shillings—that is, he can now purchase half as much again as he did before the cost of necessaries was reduced. This must place him in a position of comparative comfort, and enable him to devote a surplus to the clothing of his family, &c. Here then a new *home* demand springs up for manufactured commodities, still further to reduce the cost of manufacturing them, and, consequently, still further to increase the *foreign* demand for them.

We have purposely selected Belgium as a test, by which a judgment is to be formed of the relative capacity and future condition of British and foreign labour, because she has greater advantages for carrying on a competition with us than any other country on the continent. The Belgian workman is remarkable for his steady and enduring industry; he is, moreover, a skilful workman, the geographical position of Belgium is favourable for exporting her manufactures, and she is the most favoured by nature of all continental nations in the matter of fuel; and yet a protection of fifty per cent could not keep the English competitor out of her own market. The cotton-manufacturers of Belgium have confessed all this. “Take the trouble,” they said, in the Remonstrance to the Belgian Chambers, to which we have already alluded, “to reflect on the situation of this manufacture, and you will recognise this singular, and, at first sight, inexplicable fact. We are as skilful as our foreign competitors; the topographical position of the country is advantageous; in certain respects we can work with as much economy, and even more than the manufacturers of foreign countries; and yet, if no change is made in the actual state of things, it is decidedly impossible for us to sustain this competition.” And the master-manufacturers in every continental state have even more reason to complain. The money rate of wages, as at Elberfeld, in

Prussia is far higher, coal is dearer, transport to the ports of shipment more expensive, and the duties upon everything employed in the processes of manufacture higher. Well might M. Bockmühl, of Elberfeld, say to Mr. Thomson, "that, with all these disadvantages, you will readily grant that we absolutely give up all idea of competition with the manufacturers of England on equal terms"—and in third markets, of course, the Prussian manufacturers must meet the English manufacturers on equal terms or not at all.

And let it be remembered that these *third markets* are of rapidly growing importance. The inhabited area of the world is rapidly expanding. New communities, that is, new markets, are daily springing up, in the hitherto desert regions of the New World in the West, and in the traditionally fertile islands of the Old World in the East; and European rivals can never meet the English manufacturer and operative there, as long as they cannot afford to meet us in their own markets without protective duties on *our* commodities, which are nothing less than state bounties on *theirs*. The people of Belgium may consent to be taxed for "the protection of Belgian industry;" they may prefer a dear Belgian print to a cheap English one—*pour patrie*; but they will find little sympathy for Belgian patriotism in any other market than their own.

But it is said—and by none more contemptuously than by our own *dilettanti* in these matters, and those who echo their judgment from being too ignorant or too indolent to form a judgment of their own—that the rude energy of the English workmen will, in the long run, prove no match for the exquisite taste of his foreign competitor. Now, if it were a necessity, a law of nature in fact, that things should for ever continue as they are now—that the Englishman was ordained to excel in what is useful only, and the Frenchman (for instance) in what is ornamental only—we would not exchange the Englishman's lot for the Frenchman's. The *useful* is

for the many, and in a very great measure for *all*;—the ornamental is only for a few; and we would much rather have the supplying of the former than the supplying of the latter. Who would not—as far as money-making goes—rather have the supplying a whole nation with *bread*, than the supplying only the genteel portion of it with *pastry*? But there is no such necessity—no such law—no reason whatever why the Englishman should not acquire the Frenchman's *taste*, though there would be much more difficulty in the Frenchman acquiring the Englishman's energy. What is Taste? Let us define it truly; and then see whether Englishmen are disqualified by any natural impediment or deficiency from acquiring the gift “on the same terms as the most favoured nations.”

Taste is nothing more than a sense of the beautiful—a sense which is innate in no created being, but is acquired only by a *familiarity* with the beautiful. Why does the young painter or sculptor, of every country, resort to Italy as the finishing school of his artistical education? To improve his taste—that is, to refine his sense and enlarge his conceptions of the beautiful, by studying there the most exquisite works ever executed by mortal hands with the brush or chisel! The truth is, that the human mind is everywhere, in every stage of life, and under all social conditions, strongly endowed with the *faculty of imitation*—a faculty which is not peculiar to this race or that clime, but universal. By this faculty, the infant intuitively acquires a knowledge of the vulgar tongue, and the sage a knowledge of the stars. Newton saw that the apple imitated the example of all the countless worlds above and around us, and hence his noble *Principia* by which he was enabled to reveal all the mysteries of the visible heavens. Galileo was struck by the apparently isochronous vibrations of a chandelier suspended from the ceiling of a chapel; his faculty of imitation was aroused, and he produced the *pendulum*.



Copernicus watched a boy spinning a top, and observed that the top had two motions—one through space in a circular course, and the other round its own axis—and hence his imitative faculty led him to conceive that the same centrifugal and centripetal forces regulated the harmony of the whole firmament, and that the Creator, though omnipotent, had not been so wasteful of His infinite power as to make the sun perform daily, round the earth, a course of more than six hundred millions of miles, instead of the earth spinning round its axis in twenty-four hours, a motion so slow at its centre as to be infinitely less perceptible than the motion of the gnomon's shadow on the face of the sun-dial. And philosophers like these—the great imitators of nature in her most sublime and stupendous operations—were not indebted for their discoveries to any mere ethnological peculiarities. There can be no doubt that Leibnitz and Newton both conceived, by analogical and analytical reasoning, the true *système du monde* at the same time, and without the possibility of any communication with, or piracy upon, each other; and the Grecian Ptolemy, though mistaken in his theory, evinced almost as much comprehensive capacity, as the Englishman or the German. And if the most sublime walks of science *can* thus be trodden by all without distinction of race or country, how can it be that the beautiful paths of art are not equally open to all? Nothing more can be wanted than an education to the beautiful—a familiarity with it—or else why should the rude Malay race of Sumatra excel all the world in works of fine gold and embroidery, though they have to fetch their thread, and even their needles, from the markets of China?

That the truthfulness of English work has been as yet unapproachable every one knows; but it has been too much the fashion to decry the *taste* of the English workman—the execution and the *finish* of his work is admitted; but it is alleged that he is very inferior in elegance of design. This

prejudice is an extremely vulgar one—we say extremely vulgar because it pervades nearly all classes, from the highest to the lowest. All have a pride in having some visible sign to prove that they are not included in the category of the great Latin satirist :

“ Non cuivis homini contingit adire Corinthum.”

And yet Corinth, in her day, had no more pretensions to vie with Athens, than Paris really has to vie with London, or St. Etienne with Manchester. We are quite sure that the perhaps too much vaunted *Expositions d'Industrie Française* could not show much more elegance of design, to say nothing of superiority of workmanship, in ornamental hardware, in ornamental glass-works, or in ornamental papier-maché and carton-pierre productions which crowd the opulent shop-windows of this metropolis, and all of which enter largely into general consumption, indicating clearly that the somewhat self-assumed superiority of Paris, in matters of taste, is rapidly on the decline, and must ultimately be ranked on a level with that of London. Again, look at what is done in porcelain statuary, one of the beautiful productions of this country ; and in silver-work on glass—another English invention, which is more capable of variety and beauty of design, and of usefulness, too, both for domestic and scientific purposes, than anything in the same line with which foreigners are acquainted. And, lastly, we shall presently see the Palace of the Empress of all Nations—the Palace of Industry—arise in Hyde Park more beautiful, and almost with as much rapidity, as the fabulous palace of Aladdin ; and that, also, is the conception of an Englishman. And we will venture to prophesy that the practical carrying out of this conception will, in the course of a generation, revolutionize the architecture of England more than Augustus did that of Rome. Augustus boasted that he found Rome brick, and

left it marble. Mr. Paxton's idea will have found London brick, and in thirty years will have turned it into crystal.\*

\* This anticipation may appear to the many rather too poetical; but so would many other things have seemed, of the same kind, fifty years ago, which have since been realized. If, for instance, any one had said at the beginning of the present century, that long before half of it had expired, we should have no occasion to go to the quarries of Greece and Italy for our finest and most delicate marbles, because we should have acquired the art of manufacturing them at home, of a more unblemished and enduring quality, than the produce of Paros and Carara, who would not have said that such an anticipation would be nothing more than the fanciful flight of a dreaming optimist? And yet the thing—thanks to the progress of chemical knowledge—has been done. And why cannot even much more be done in the manufacture of glass, for all architectural purposes, useful as well as ornamental? The materials required for the manufacture of glass are, in their rude forms, the most worthless of all substances—sea-sand and sea-weed. Nay, to make a coarse glass, not even these are required. River sand and lime, with a little common clay and sea-salt, make a good mixture for a common bottle-glass, which, if rendered somewhat pleasant to the eye, by the infusion of a metallic oxide, would be an elegant and not expensive substitute for our common brick. And as to the question of relative cost, first we must recollect that you cannot have brick without destroying so much surface-soil, the very thing which an island-nation, with a large and growing population, can least afford to spare, while the more drift-sand a nation so situated dredges away from its shores, the more secure would be the navigation of its coasts. And, secondly, would there be no difference in the cost of construction, if glass were substituted for brick? The glass building for the *Great Exposition* will be put together in a fewer number of months than it would have been in so many years, had it been necessary to construct such a building by merely piling and mortaring one brick upon another. The only question, then, is as to the comparative strength and durability of glass and brick. As to strength, let any one try the powers of a common brick tile, and of a plate of glass of the same thickness, to resist fracture; and as to durability, glass is, perhaps, of all substances, that which defies corrosion the most successfully.



## CHAPTER VI.

## A FEW WORDS TO THE ARTISANS AND OPERATIVES.

LONDON, perhaps, of all European cities, furnishes the greatest number of instances of working men rising to opulence, or who, in more stately *parlance*, have been the architects of their own fortunes. Volumes of well-authenticated facts might be cited in proof of this assertion, many of them bearing date even prior to the time of "Whittington and his Cat," of undying reputation. A slight acquaintance with the principal firms in the City, which have grown up during the last half-century, will suffice to prove that the majority of the heads of those firms have sprung from what is commonly called "the ranks;" and who, at the outset of their industrial career, were either journeymen or clerks, or occupying some other subordinate position. The learned professions, the bankers, and the merchants, in some respects, form an exceptional class; although, in many instances, even these pursuits have been ennobled by men who have risen from the humblest ranks by dint of their untiring industry, and their unimpeachable integrity: and even in this exceptional class, the main and more immediate cause of advancement has been the rare union of talent, of probity, and of perseverance, together with an ordinary share of good fortune, in a single individual. Nor is the union of these elements of success in life of infrequent occurrence, even if we confine our view to a

circle of a mile round St. Paul's; for almost every street, lane, and alley, can furnish some striking example of present wealth, sprung from preceding poverty, as the majority of the firms, comprising what may be called the "solid" portion of the City, have been formed and reared up by the resolute will and determined energy of single, and comparatively poor, individuals.

Yet the metropolis, notwithstanding its golden harvest, which is reaped by common prudence and honesty, combined with uncommon perseverance, presents a greater body of artisans, operatives, and labourers, of one kind or other, immersed in the very depths of misery, than perhaps any other great centre of industry in Europe, taking into account the relative number of its population. Nor is London dependent, like several other large towns, upon one or two branches of industry, which are subject to the fluctuating incidents of uncertain demand and supply, but unites within itself an aggregation of industrial pursuits, which furnishes a fecund field for labour, available at all times, in one form or other, to the prudent and steady workman; in addition to which, it is the capital of the empire, the seat of the Court, the largest sea-port in the world, the residence of a multitude of wealthy families, of merchants with almost princely fortunes, and of a host of inhabitants, well-to-do in life, whose multifarious wants must operate as a constant stimulus upon the ingenuity and industry of the labouring classes; yet, in spite of these manifold advantages, London is afflicted with a great moral malaria of perhaps a denser nature than is to be found in any other European city.

How is this? Why, in some parts of the metropolis, are our feelings wounded at every turn, by the spectacle of misery in so many shapes? That indigent workmen are more numerous in London than any other large town, is somewhat difficult to explain; seeing that there are so many means of obtaining employment, were common pru-

dence and ordinary foresight called into requisition ; but, reasoning upon the facts of the case, we are irresistibly led to the conclusion, that the indigence of the workmen, which, in relation to the mass, may be termed a constant quantity, must be attributed to the absence of those qualities which are indispensable in any and every walk of life.

Others, however, maintain that the indigence of the working classes arises, in a great measure, from the want of rational amusements, which ought to be within their immediate reach, during their days of rest ; and that the temptations to vice, peculiar to the capital, which abound in almost every quarter of it, are of such an irresistible nature, that the rough and rude "unwashed" cannot refrain from indulging in them. Be this, however, as it may, and not presuming to question the conclusions of this class of reasoners, we shall content ourselves with pointing out a few of the phenomena which appear upon the social surface, and which must be patent to the eyes of even the common observer—namely, that a large portion of people live by cheating and plundering the working man of the metropolis, either by the sale of adulterated articles of food, poisonous liquors, or damaged goods ; besides herds of low prostitutes, who maintain themselves at his expense, and sharpers, and pot-house speculators, who improvise excursions, clubs, harmonic and friendly meetings, all of which the working man has to pay for. Indeed, every temptation, in the shape of gambling, from the rat-pit to the race-course, is proposed with the intention to victimize the *prolétariat*. And why ? One little word of five letters will explain all—**DRINK !**

The instruction now given, however, to the humblest members of the rising generation—would that it were upon a more extended and useful scale—will, it is hoped, teach them to despise those haunts of reckless intemperance, the gin-shop and the tap-room, where money, time, and health, are alike engulfed in the foul whirlpool of vice and inde-



cency. Were the working classes to note down their annual receipts in one column, and their unnecessary expenses in another, they would soon discover that their penury and periodical destitution arose more from mismanagement and extravagance than from a deficiency of means. That it is difficult for a man of sober habits to abstain from the ordinary temptations of society, will be readily admitted, particularly when presented to him by fellow-workmen, in whose company he is compelled to toil; yet compliance with his dissipated associates' invitations has frequently converted such a man into a confirmed drunkard—the reckless and ruined *habitué* of the glittering gin-palace, or the dark beer-den. The false shame, too, of passing for a miser, or of appearing proud, has frequently converted a careful man into a careless spendthrift—into the familiar acquaintance of a herd of idle tipplers. The want of resolution to refuse, when invited to share “a single pint,” to smoke “half-a-dozen whiffs,” to play “a single hand at cribbage or dominos,” “only one game” at draughts, put, or all-fours, “to put his name down” to a raffle, a goose-club, a money-club, &c., has likewise entangled many a rational-minded and sober man in the anti-social meshes, where “potations pottle deep” are the order of the day, and drunkenness becomes an habitual pastime.

Again, a young man is no sooner known at a public-house than he is honoured with the smiles of the landlord and his assistants, even down to the barmaid and potboy. Plain Jack, or Tom, elsewhere, in the temple dedicated to beer and gin, a higher compliment is paid him—the only one that a poor man receives—he is there dubbed Mister; his pipe is put away as carefully as though it were a sanctified relic; his jests, for the first time, perhaps, are applauded, and his opinions heard with an apparently respectful deference; the landlord, too, confidently communicates some projected improvements, either in the lettering of his sign-

board, or in the display of objects in his window, and these friendly dialogues mostly terminate with a recapitulation of unpaid scores—real or imaginary—which he (good-natured man!) cannot decently refuse, believing that class of people—his only flatterers—to be most respectable and honourable men!

And the landlord has also another hold upon his simple, succulent, and semi-sinful dupe. The former generally retains a satellite or two, who are always ready to praise any villanous beverage that may be introduced; to entertain the company with their hot, and hotch-potch politics, or their tales and jokes, sometimes more villanous than the filthy compounds which they swill down, and then to find some plausible excuse for another “convivial meeting.” These parasite services are not performed gratuitously, as a simple stranger might readily imagine, for the “barker” is rewarded by an occasional glass from the “bar,” or has the privilege of “running up a score,” in order that he may keep the company together, or, in other terms, amuse those who “use” the house.

The working man, who first attends these “convivial meetings” with reluctance, soon enters into their spirit, and goes willingly to spend his money and time, until he acquires the inveterate habit of drinking and smoking, which are seldom shaken off, but which, almost invariably, have a fatal effect upon his health and morals. In this condition, all hope of worldly advancement is immediately frustrated, for, if it be once known, or even suspected, that a working man is a drunkard, all chance of rising above mediocrity is irrecoverably lost. This, in too many instances, is the sad history of the artisan and the operative, and also of other, and presumed higher labourers, in the wide and diversified field of industry; yet, many of these sad instances of perverted worth might, and most probably would, have risen to a first-rate, or, at all events, to a highly useful and honour-

able station, had they eschewed "the slippery paths of vice," the portals to which, are too frequently the gin-shop and the beer-house.

That the instruction now bestowed, with comparatively a more liberal hand, upon the humbler classes of society will have a strong tendency to fortify their moral feelings, and, as a natural consequence, to better their physical condition, may be assumed as an accomplished fact. It will do more than that; it will enable our working men to prepare themselves for the great industrial struggle, which is now manifesting itself so prominently in the world's labour-arena, and which is demanding, in every quarter, the highest intellect, the most enduring patience, and the greatest energy, in order to sustain its varied and respective relations. The working men, moreover, and especially those of the skilled order, must make up for lost time and lost opportunities, by acquiring a more intimate knowledge of the science of their crafts, wherein lies the true secret of success, or they will be worsted in the race; for the foreigner, in many respects, has stolen a march upon them, and can command from the capitalist a higher amount of wages than can be obtained for similar work in England.

There is also another reason why the working man should abstain from excessive drinking, and its pernicious consequences, which completely unfit him for a healthy and profitable application of his *best* labour—namely, the necessity of raising his head above the condition of his hands, and not contenting himself with depending upon the dexterity of the latter. When our skilled operatives shall effect this useful revolution in the directing agents of their labour, they will do away at once with, what we have already remarked, the equality in the value of their services, which the capitalist assumes, and directs naturally to his own advantage. The operative, in his present condition, is reduced to contend for employment upon the strange principle of, not who can do



the best work, but who will sacrifice himself for the worst wages. Why is the skilled labourer frequently reduced to this condition? why does he stand in the labour-market among the common ruck of labourers, to receive the same pay, and to experience the same vicissitudes? Simply because one pair of hands is as good as another in ordinary pursuits; but, we repeat, were he to keep his head clear, and give his thinking faculties fair play, capitalists would then be the competitors for his high-priced talent, and not he the competitor for low-priced work.

Again, the working man who feels conscious of his superiority, in point of manual dexterity, or the skilled application of his labour, ought to depend upon his own worth, and act upon his own judgment, and not permit himself to be led astray from the straight line of his own interest, by acquiescing in the suggestions of others, who are generally influenced by selfish feelings of one kind or other, to which he is invariably sacrificed. Look at the history of the combinations and the strikes of the working classes, investigate minutely their various workings, and mark the inevitable result—the skilled and dexterous-handed labourer, who could always obtain employment and fair remuneration, is compelled to imitate the comparatively feeble and indifferent workman, or, in other terms, to sacrifice himself for the supposed advantage of his inferior companion. All strikes, with scarcely an exception, are the sacrifice of the skilled *few*, to the presumed advantage of the indolent, ignorant, and indifferent *many*. Labour, therefore, if it wish to improve its condition, must eschew combinations and strikes; it must establish itself upon the same conditions as capital, and submit to the healthy and invigorating influence of competition, by which alone it can secure fair play and realize its best interests.

By adopting this line of conduct, the skilled labourer will prepare himself for the many and extraordinary changes

that are almost daily taking place in the industrial relations of the world—changes that must constantly, in one way or other, influence the general condition of his own particular class.

The necessity of being prepared for these great changes has been earnestly and sincerely inculcated by an *illustrious*\* friend of the working classes, whose sympathies are invariably identified with their well-being, and who always rejoices in being engaged in whatever may lead to their improvement and the advancement of their interests.

“Among other effects,” writes the Prince, “produced in modern times by the progress of knowledge, the improvement in mechanical inventions, the greater facility of communication, and a more unrestricted competition, the condition of the working man has also been materially affected, and from the sudden nature in many cases of the change, he has not always been able to adopt that condition to it as rapidly as it has taken place. Thus it may often happen that, from circumstances over which he has no control, the particular branch of industry on which he depends for his livelihood may experience a great depression—the advance of science bringing some new machinery into operation, or the facility of communication throwing a greater supply into the labour-market than there is a permanent demand for.”

Nothing could be more aptly described; here are the dangers and the difficulties of the working class—dangers which may be obviated by a little foresight and prudence, and difficulties which may be surmounted, if the head be permitted to direct *coolly* and sagaciously, the dexterity of the hand, and not the latter sulkily and slovenly allowed to do its work, as though it depended solely upon its own “cunning.”

\* *Vide* Prince Albert’s Reply to the proposed “Tailors’ Guild,” 1850.

## CONCLUSION.

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FROM the preceding observations upon the relative condition of the manufacturing power of Great Britain and the States of the continent, it may safely be concluded that we shall excel them in the useful, while in the ornamental they will stoutly contend against us, and, in several instances, will most likely obtain the palm of superiority.

In the higher branches of silk manufacture, France deservedly occupies the most prominent position; while in the useful we hold an equally elevated one.

Again, in the higher branch of printing on fabrics, France must be ranked the first; while our position, as regards the lower and intermediate qualities, is the same as in the manufacture of silks—unequalled.

In paper-staining, precisely the same relations exist between France and England as in the two preceding branches of industry.

It may be safely affirmed that in machinery we have no equals, if we except a few surgical instruments, and those used for astronomical purposes; yet even in this branch of mechanics we are seldom surpassed, and rarely equalled.

In the manufacture of carpets, with the exception of the Gobelin and Aubusson productions, which, from their costliness and extremely limited consumption, ought to be excluded from every comparative estimate, we have no rivals, nor any-



thing approaching to a condition of rivalry, if we take into consideration the beauty, durability, and general economy of our productions.

The same remark will apply to the *Sèvres* productions of France, as to those of the Gobelin and Aubusson—their costliness limits their consumption, and throws a weighty doubt upon the utility of their production, so little can they influence the general interest of that branch of industry. In porcelain, therefore, we necessarily excel the French, not only in the quality of the material, but also in the general utility and beauty of our productions. In painting on porcelain we have also made great progress; but the palm of excellence must still be accorded to France.

In pottery we are far a-head of the whole world.

In the general manufacture of glass we are equally advanced, and rival the continent in the beauty and purity of the material. In flint-glass we have no equals; nor in the manufacture of plate-glass, if we except Belgium, and in one or two instances France, need we labour under any apprehension. But in the colouring of glass for general purposes, the French and Germans are still a-head of us, although signal discoveries have been recently made by our manufacturers, as regards the oxides of metals, which will shortly place us on a level with our neighbours, even in this respect.

The leather of France still maintains its acknowledged superiority, not only in the fineness of its grain, but also in its exquisite elasticity. This remark applies to the upper-leathers; in soles we are equally excellent, while France is as much inferior to us in this respect as we are to her in others. In the manufacture of Morocco leather she has no equal, either for beauty of colouring or for fineness of texture; nor in the shape and finish of her gloves has she anything to fear, as yet, from the persevering industry of Worcester.

The cutlery of England is as equally renowned as the rich silks and wines of France; nor has Solingen the power, with

all its ingenious devices and tricks of trade, such as fabricating English names on its productions, in neutral markets, to diminish its consumption. It stands alone in its excellence, and is universally sought after.

The fine cambrics of France, and the lace of Belgium, will doubtlessly hold their appropriate positions in the forthcoming Exposition; while the linens of Ireland and Scotland cannot fail to attract an equal attention, from their excellence and durability.

In hosiery it will be necessary to make some efforts to sustain our justly acquired reputation, especially in the lower-priced qualities, as Saxony has proved herself exceedingly skilful in producing them. But in the higher and intermediate qualities we have little to fear; Leicester surpasses the whole continent in this department of industry. Nor shall we have anything to fear in the fabric of silk stockings, as the cheapness of the raw material, and the general excellence of our machinery, has placed us above France in this particular.

Nor will the shawls of Paisley and Norwich keep far in the rear of those of Nismes and Avignon; or the multitudinous articles of Manchester, and its teeming sisters—Macclesfield, Bolton, and Salford—shrink from a comparison with those of Rouen, St. Quentin, and Abbeville.

The heretofore supremacy of France in fine woollens will be keenly contested by Leeds and Bradford; and it will be doubtful—exceedingly doubtful—whether the high reputation of the merinos of the former, whose softness and beauty are universally admired, can be maintained, when compared to the productions of the latter. The fine wools of Australia, and the reduction of duty upon olive oils, have led to this important change in the relative manufacture of the two countries.

Notwithstanding the improvement which has been effected by Coventry in the quality and style of her ribbons, still she

must bow her head to to the superior beauty of St. Chamond and St. Etienne, whose taste cannot for a moment be questioned; nevertheless, she may console herself with the reflection that her plain productions, and many of her fanciful ones also, have completely beat the Swiss and French out of our markets.

The clearness and precision of our typography is everywhere acknowledged; while in the sister branch, lithography, France is equally eminent. Indeed, in the lithographic art our neighbours have scarcely a creditable competitor.

We have few competitors in plate-work; this branch of industry is almost exclusively English, especially since the electro-plating of Messrs. Elkington has carried the art to its present perfection: nor will France long maintain the superiority in the fabrication of bronzes, if the same ingenious firm continue to advance, as they hitherto have done, in this beautiful manufacture.

The buhl-work of Vienna and Paris has no rival; nor has the wire-manipulation of Berlin, together with its tasty knitting with variegated wools; nor has Holland in its wicker-work; nor Belgium in its carving of wood, except here and there an isolated production of the carvers of this country. The little town of Offenbach also maintains its supremacy in its ingeniously-constructed work and fancy-boxes.

The superb Genoa velvets of Lyons, as they are technically called, are unrivalled, although Spitalfields has made, and is making, creditable advances towards equalling their exquisite richness and beauty; while in the lower qualities of this article we are beating the productions of Crefield out of the market, not excepting even ribbon-velvets.

In the manufacture of paper in general we are unsurpassed; and were the duty reduced or abolished, there would be little chance, from the abundance of the raw material which we possess, of our neighbours approaching us; but in soaps and



perfumes France, from her superior chemical skill, has few competitors, and no equals.

The exports of manufactured cotton to almost every part of the globe attests the grandeur and importance of this staple; its extent is measured by millions of pounds sterling per annum, and therefore requires no comment from us.

*Quantum sufficit.* We have taken this quiet *walk through the workshops of Europe* in order to fairly and impartially estimate the skill and labour which they relatively display in their productions, and to calculate their respective chances in the *Combat d'Industrie* of next year. Nor ought our observations to be viewed in the same light as those of mere compilers, for they are based upon practical knowledge, and upon a long and intimate connection with one important branch of manufacture. We have frequently heard the "busy hum" of industry on the banks of the Rhine and the Rhone—at Elberfeld and Crefield, as at Lyons and Avignon; and have watched the play of the shuttle, not only in Manchester and in Spitalfields, but also in the remote hives of Lyons and St. Etienne, therefore may be pardoned, even by the most prejudiced mind, for thus embodying our practical experience, though we should fail to dispel its dark yet dearly-cherished illusions. But we have a higher object in view than simply dispelling the illusions of the prejudiced mind. We wish to confirm the doubtful, to strengthen the timid, and to enlarge the sphere of the active and intelligent, in order that each and all may appreciate justly and definitely the real condition of the difficulties before them.

To the operative and artisan we would repeat the excellent address of the Bolton Committee:—

"It is almost certain that every ingenious mechanic and artisan, anxious to improve himself in his particular trade and advance his position in society, will not fail to visit the Industrial Work of all Nations. Because—at a trifling expense of time and money he may leisurely examine the raw materials and manufactured products of the whole globe,

which hitherto the very wealthy only have been able to see. Because—he can compare the various materials and products with each other, discover which of the former are best suited to the uses of his trade, avoid errors, and imitate the excellences of the latter. Because—he can in numerous instances see tools, machines, and means employed in the designs, patterns, and combinations of their arts, which may be advantageously adapted to his own. Because—if he neglects to avail himself of the advantages offered, he will be in a worse position than his fellow-workmen who embrace them. The Exhibition will thus injure him if he refuses to benefit by it.”

To the manufacturer, and to mercantile men, we would remark, *that England possesses an almost overwhelming advantage, in the abundance and cheapness of raw materials, and the capital to turn those raw materials to the best account.*

From this vantage-ground, then, we may bid defiance to the world; we can do more—we can instruct it in the cunning and skill of our craft, and in the secret of nursing its resources to the same useful end, convinced that every addition to the civilization of others must have a sensible effect upon our own, and that the stock of happiness accumulated by any one people will, in the end, as certainly spread itself to others, as water will find its own level. To take the lead, therefore, in elaborating the *Grand Idea of the Age*, ought to be the pride of the mercantile, the manufacturing, and the operative citizens of Great Britain, if it were simply to extend the efforts which the men of science and the friends of order—the true benefactors of their species—are now making to stimulate the bulk of the working people not only to exertion in the useful paths of industry, but also to the bettering of their general condition.

Nor should we evince indifference to the *illustrious* appeal which has been made to the spirit and genius of our national character—to practically apply the useful and beau-

tiful creations of the mind. Steam walks the water like a thing of life; and the electric wire has reduced time and space to an almost incomputable quantity; how then are we to work up to these tremendous powers, unless we infuse an almost lightning spirit into our creative energies, and impart a kindred impulse to the practical application of them? The grand and leading feature of the age is *material* improvement; to facilitate communication—to bring mankind together in peaceful relationship—to create a feeling of friendship, of good-will, of kindly benevolence—to enlarge the affections and sympathies of one's nature—is the prompting spirit of these times. Man, now, by the aid of steam, can almost "grasp the ocean in his span."

Wars, conquests, and battalions of armed men ought not to blur and blotch the page of these times. The pulse of the world should not beat in that direction. Conflicting opinions, rather than conflicting armies, are moving the brains of men, and the battle-strife will soon be transferred from the tented field to the printing-office. Indeed, the pen of the writer has already become a more potent instrument than the sword of the soldier; nor is the time far distant when a higher homage will be paid to the ashes of the philosopher than to those of the warrior—to the creator, rather than to the destroyer, of man's rational well-being.

And the *Grand Exposition of 1851* is a step in the right direction towards arriving at the noble end which we have earnestly though feebly described; and to whom are we indebted for this useful and well-directed step? to a Prince, who is not only *illustrious* by courtesy, but has become truly and really so—*illustrious* by the quiet dignity and unaffected goodness of his *actions*.



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